

Assessing Resistance to Technological Change for Improved Job Performance in the UAE (Public Sectors)

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Declaration

This to certify that this thesis is the result of my own work, and that no portion of the work contained therein has been submitted for another degree or qualification in this or any other institution for a higher degree. To the best of my knowledge, it includes no materials that have been published, and the original work is my own except where the due reference is made.

Mohammed AL -Ameri

ABSTRACT

Globalization, restructuring and new technology developments in each and every sector has brought tremendous changes in all aspects of business and human lifestyles. One of the major changes that took place in business is change technology. Technology innovation or change has an important influence on organizational performance. There is a close relationship between technology change, human resource management and organizational performance. Change in technology has been identified to have both positive and negative effects on employees work performance and attitude. Thus the current study aims at developing a framework to identify the factors that may point to employees' resistance to technological change within UAE public companies and to use the framework to identify opportunities for improvement in job performance. Objectives are to identify the factors, which call for technological change that lead to technological resistance, improvement in job performance, develop a framework for assessing employee resistance to technological change and identify opportunities for improvement, further validate framework using case studies in the UAE and finally propose valid recommendations for overcoming employee resistance to technological change in the UAE. Survey and semi structured interviews were conducted with HR managers in three UAE public sector companies. Survey responses were measured using a five point Likert scale. Reliability test and ANOVA analysis were carried out for analyzing the collected data.

Results indicate technological development as major reason for change. Reward policy is given priority for indicators of job performance effectiveness this has led to improvement in the quality of work, accomplishing task, eliminate errors. Further major reasons for resistance to technological change from management perspective were found to be fear of overload, loss of power, increasing work load and from employee perspective need to learn and re-learn, lack of appropriate reward policies. Measures and opportunities for improvement to overcome resistance to change brought about by new technological implementations UAE public sector have taken major steps to work towards resistance to technology change. There is a need to study as to what extent employees and management are able to cope with new systems and conduct regular surveys and to

collect opinions from employees to know what they need in order to cope with the new technology. Further it is essential for employees and managers to make them selves comfortable in accepting change with the help of training and other knowledgeable sources

Keywords: Employee Resistance, Job Performance, Organizational performance, Resistance to change, Technological change, UAE public sector.

ABBREVIATIONS

| | |
|---|--|
| ADDC - Al Ain Distribution Company' | TC – Technological change |
| ADNOC - Abu Dhabi National Oil Company | CSF's - Critical success factors |
| ADWEA - Al Ain Water and Electricity Authority' | KPI's – Key performance Indicators |
| ANOVA – Analysis of variance | IS - Information systems |
| CAD - Computer aided design | IT - Information technology |
| CAM - Computer aided manufacturing | LSD – Least Significant Difference |
| CIT – Communication and Information Technology | MIS - Management Information Systems |
| CoV – Coefficient of Variance | MNC - Multinational Corporations |
| GIC – General Industries Corporation | R & D - Research and development |
| GIS - Geographical Information System | SD – Standard Deviation |
| HR – Human Resources | SPSS - Statistical Package for the Social Sciences |
| HRD – Human Resources Development | UAE – United Arab Emirates |
| UOG - UAE Offsets Group | |

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CHAPTER 1

INTRODUCTION

1. INTRODUCTION

Working culture is undergoing changes globally. The need for transformational “leadership” in the public sector is made most evident by the pressures for change felt by today’s public managers. These change-related pressures come from many sources: an aging public sector workforce, resource constraints, globalization, technological breakthroughs, increasingly complex public problems, and new horizontal and vertical relationships with non-profit and private sector organizations. In many cases, these demands for change conflict with one another and constantly compete for the public manager’s time and resources. Furthermore, in both the public and private sectors, inescapable demographic facts are raising questions about how organizations will meet their talent needs in the years to come. The first step is “Leadership Next” where organizations’ have to gather a group of the finest leaders, which has become a challenge for businesses. New directions in government, born of economic disruption and a change of administration, require the public sector to assume new roles and responsibilities even as a talent and employment crisis looms. Moreover, technological innovation continues to impact on the public sector workplace as much as it does in the private sector. A new imperative to address the unique needs and aspirations of the individual is gradually gaining recognition in workplaces of all kinds. These workforce trends are even now presenting the public sector with a broad range of significant employment challenges which will increase with time. In the face of remarkable changes, the public sector must find new ways of managing its workforce to enhance skills, capabilities, productivity and high performance.

“Change” has become common and pervasive in most organizations but is often resisted by employees resulting in conflicts and reduced organizational performance. Coetsee (1999, pp.205) stated *"any management's ability to achieve maximum benefits from change depends in part on how effectively they create and maintain a climate that minimizes resistant behaviour and encourages acceptance and support"*.

According to Zander (1950), resistance to change is defined as *"behaviour which is intended to protect an individual from the effects of real or imagined change"* (cited in

Dent and Goldberg, 1999, p. 34). According to Folger and Skarlicki (1999, pp.36) resistance has been defined as *"employee behaviour that seeks to challenge, disrupt, or invert prevailing assumptions, discourses, and power relations"*.

To encourage continued economic growth, the UAE is in the midst of a 20-year economic diversification plan. As part of this plan, the UAE government has allocated US \$13.4 billion towards the development of the non-oil sector, much of which will be spent on telecommunications, information technology and tourism. The government has also introduced policies which have encouraged foreign investment in the UAE that has further accelerated the rate of technological change within UAE organizations and particularly in the public sector (UAE, Final report, 2005). Many researchers have studied the relationship between technological change and Human Resource Development (HRD) practices indicating that the latter will need to be adopted in order to minimize resistance to change (Folger and Skarlicki, 1995; Lundvall and Nielsen, 2007). Therefore, this study focuses on identifying the reasons for resistance to technological change and strategies to overcome such resistance in UAE public sector companies.

1.1 Background and UAE Geographic Information

UAE is situated in Southwest Asia, with one of its borders lying on the Gulf of Oman. It is in the Arabic Gulf region between Oman and Saudi Arabia. The country lies between 22°50' and 26° north to its latitude and between 51° and 56°25' towards east longitude. Consequently, UAE is situated in a strategic location along the southern approaches to the Strait of Hormuz, a place which is the transport point for world crude oil (See Figure 1.1). Among the seven emirates, Abu Dhabi is the largest emirate with 87% of the total area (67,340 square kilometres) (United Arab Emirates, 2010)



Figure 1:United Arab Emirates' map

The UAE climate is generally hot and dry as it is a desert area with the Arabian Sea forming one of its borders. Over the past few years the city of Abu Dhabi has concentrated on diversifying its economy through modernization, public administration, information and technology, financial services and the tourism industry. The city houses the federal government and has grown as a cosmopolitan city and consists of three major areas:

- 1) Abu Dhabi and the city of Abu Dhabi (the capital state of the UAE)
- 2) The eastern region and its capital city of 'Al Ain'
- 3) The western region and its capital city of 'Heresies Zayed'.

After the discovery of oil, oil became the mainstay of the economy and less concentration was focused on the physical infrastructure (like water and electricity, airports, roads etc.) to meet the development in certain areas like trading, construction, banking, insurance services etc. (Al-Otaiba, 1970).

1.1.1 Investment in the Public Sector

UAE has been keen to develop the public sector from 1969 onwards. In 1981 a large refinery was opened at Ruwais in the emirate of Abu Dhabi. The two refineries at Ruwais and Umm al-Nar refinery constitute about 10 percent of Abu Dhabi's oil, the rest being exported as 'crude'. They are the highest performing refineries in the world in terms of return on investment. In Abu Dhabi, the largest and richest emirate, public sector industrial projects are shared between two main bodies: ADNOC (Abu Dhabi National Oil Company), which is the main organ for executing Abu Dhabi policy and covers production, marketing, oil exploration, marketing, processing etc. The other body is GIC (General Industries Corporation) which undertakes non petroleum related projects (Ghanem, 2001).

1.1.2 Developments in the Public Sector

1.1.2.1 Development in industries

There are many developments that have taken place in many parts of the emirates. With the increase and growth in the population, in technology, industrialization and innovation, developments taking place. One of the most important developments in the UAE is the "gas industry"; namely, the Dolphin Project which seeks to develop relationships between the gas infrastructure of the UAE, Qatar and Oman, through a possible future link to Pakistan. This brings many advantages to all the countries involved; for example, it brings exports of non-related gas from the massive offshore North Dome field of Qatar, benefiting Qatar by incurring revenues from the project. A statement of standards on the project was signed by the Qatar General Petroleum Corporation and the UAE Offsets Group (UOG) in March 1999. This is the biggest development that has taken place to enhance the oil industry in emirates (Ghanem, 2001).

1.1.2.2 Social Development

The social sector has witnessed significant growth in higher education and scientific research, healthcare, the labor force, social welfare development, culture, population and

community development The objectives of public policies in education are aim at increasing the performance of students in higher education in order to meet society's expectations, increase the quality of schools in the public and private sector, ensuring that students achieve higher requirements in order to meet community requirements and making them ready to compete for job opportunities in both local and international markets.

1.1.2.3 Healthcare Sector

In the healthcare sector, the UAE government is concentrating on improving the organizational, legislative and legal frameworks established on international standard practices to promote and expand the private and public sector health services. In order to support this, effective quality control techniques are being used in public hospitals in order to bring improvements in primary health care departments. The approach also covers medical professionals' training and developing the Emiratisation programme in this key sector.

1.1.2.4 Economic Development

The government of the UAE has formulated several strategies with regard to public procedures. These have been proposed in order to motivate economic growth, increase the competitiveness of the national economy and to upgrade the legislative and regulatory frameworks to accommodate present and future economic growth. Consequently, the policies focus on the government's involvement in implementing wide-ranging training programs for UAE nationals to enhance their efficiency in the labor market and to encourage entrepreneurship among young UAE individuals so that they can seize available opportunities to start small and medium scale enterprises.

1.1.3 Employees Engaged in the Public Sector

The UAE has a two tier labour force: one tier is indigenous labour and the other one is foreign labours who contribute to the economic development of the country. It is observed that 80 percent of the population who live and work in UAE are expatriates. In

the year 2004 expatriates constituted 2.5 million of the total labour force of 2.7 million (total UAE population). This shows that locals made up less than 10 percent of the employed population. In April 2007, the UAE government unveiled a new national strategy that declared that there should be “Emiratisation” of the workforce to become the centre of the country’s future economic development (Country Profile: United Arab Emirates, 2007).

1.1.4 Communication and Information Technology (CIT) in the Public Sector

There is a significant change in the usage of information and technology in public sector companies in the UAE. The Abu Dhabi government has introduced the latest and most advanced information systems in all the public sector companies which are not only providing benefits to the government but also to the general public. With the introduction of this information and communication technology work can be undertaken faster, has become easier and is able to provide better services for the people.

1.2 The Need for this Research

1.2.1 Government Policies for Economic Growth and HR Development

The government of the UAE has consistently supported policies that create an atmosphere in which trade and industry can flourish. The government’s policies regarding the advancement of information technology have been aimed at encouraging investors to establish their businesses in the UAE and at assisting local businesses. There is no significant government finance or subsidies for research and development programmes (RandD).

As described by Hejmadi (2004), the UAE is considered ahead of other nations in the region with regard to its information technology implementation. This is evident from the continued use of, and high adoption of, CIT across both public and private companies in the UAE. As explained in section (2.3), the UAE has introduced CIT in all its public sector companies. Although the nation does not have a thriving hardware and software market in terms of manufacturing and design, the UAE is still considered one of the

leading nations in information technology adoption (Lundvall and Nielsen, 2007). However, the risk of implementing new technology is mitigated to a large extent as expatriates bring in the latest technology alongside their experiences of being globally competitive. Massive oil wealth, low labour costs and the country's ideal location has provided the UAE with tremendous opportunity to become a premier location for exploiting technology in the twenty-first century. The openness of its society and the employment of foreign experts will further help to drive effective policies for adoption across its economy.

1.2.2 Lack of Empirical Studies

Because the introduction of information technology into the UAE public sector is a recent development, there is a lack of empirical research studies on the resistance to technological change and its impact on employees and company performance in the context of the UAE. This offers the author an opportunity to contribute to the knowledge in this subject area of technological innovation and presentation.

1.3 General Nature and Purpose of the Study

1.3.1 The Significance of, and Justification for, the Research

UAE has seen drastic changes in economic and technological developments Laumer (2011). Global competition has emphasized in innovation and technology developments in all sectors in the country. Researchers emphasized on change management (Zahi and Adnan, 2012), reasons for change and types of resistance to change in UAE (Tavakoli, Ebrahim and Golnam, 2008) and all these studies majorly focused on literature review based analysis. In one of the studies Suwaidi (2012) emphasized on the reasons for employee resistance to organizational change and reported that in UAE there exist resistance to organizational change and management is working towards overcoming such issues which were majorly done through literature review. Another theoretical review based investigation was done by Laumer (2011) on the reasons for resistance to IT induced change and why employees do not accept change. Laumer (2011) research identified that there is a relationship between technological change and HR development

practices (Lapointe and Reward, 2005). Thus these studies give evidence that in UAE there exist resistance to technology change as UAE public sector administration is under compulsion to introduce technological change (Lapointe and Reward, 2005) but there are no evidences of empirical investigation of the same in UAE public sector organizations. Thus there is a need to study the reasons for technological change and reasons for resistance, and on HR development practices within the UAE, particularly within its public sector. This research intends to bring out the empirical outcomes of the reasons and what necessary actions HR management is taking to overcome the resistance. This research will help the management, organizations as well as researchers to understand the major reasons for technology change on how it shows an impact on employees performance and work productivity.

1.3.2 Aim of the Research

The aim of this research is to develop a framework to identify the factors to assess employees' resistance to technological change within UAE public companies and to use the framework to identify opportunities for improvement in job performance.

1.3.3 Research Objectives

The above aim will be achieved via the following objectives:

- To identify the factors which call for technological change in the UAE .
- To identify the factors that lead to technological resistance in the UAE.
- To identify the factors likely to lead to an improvement in job performance.
- To develop a conceptual framework for assessing employee resistance to technological change and identify opportunities for improvement in order to achieve better job performance.
- To validate the framework using case studies in the UAE.
- To propose valid recommendations for overcoming employee resistance to technological change and that lead to improving job performance in the UAE.

This work is particularly concerned with human resource department (HRD) personnel in Abu Dhabi public companies. This investigation involves the analysis of some aspects of technological change and the attitudes of employees towards this change i.e., the degree of resistance to this change. This will enable the author to predict and explain certain effects of this change on performance and then to determine if there is an impact on employees' performance.

1.3.4 Research Questions

- ✓ What are the factors that lead to resistance to technological change in the public sector organization in the UAE?
- ✓ How can opportunities for improvement be identified and measured in order to overcome resistance to change brought about by new technology implementations?

1.3.5 Contribution to Knowledge

- A framework to study the reasons for resistance to change and technology in UAE (United Arabs Emirates) public sector companies was developed. Such resistance is wrongly perceived as a threat for future development.
- This research identified opportunities for improvement and strategies to overcome resistance to technological change in UAE public sector companies particularly in the emirate of Abu Dhabi.
- A set of recommendations was developed which will help public organizations in the UAE overcome resistance to change when implementing new technology.
- This thesis will provide a better understanding of the resistance to technology change and employee performance in the UAE public sector companies which should be of benefit to other researchers in this field.

1.3.6 Scope of the study

Due to the fast pace of technology change characterizing the current business environment in UAE, businesses have to build a sustainable competitive advantage. This

objective can only be met through creating an organizational culture, which encourages innovative thinking on the part of the employees that helps in minimizing employee's resistance to new technologies. Employee resistance is one of the main reasons due to, which most change management projects fail. This is particularly a relevant consideration when it comes to techno-structural change.

The UAE public sector companies have been subjected to rapid technological change, which has presented the companies with a wide range of opportunities as well as resistance. Technology change provides benefits to the sector in terms of the provision of more detailed and precise information, which enables companies to effectively compete within an increasingly sophisticated operating environment. Here the key to effectively managing resistance to technology change is to clearly understand the nature and reasons for employee's resistance to technology change.

The scope of this study addresses the issues of technological change within the UAE public sector companies. The objective is to study technology adoption within the public sector, highlighting the employee's resistance to change, primarily addressing the major problems in the sector that result from the resistance to technological change and analyze how management can mitigate the resistance and positively minimizes its effects. In order to achieve this it became necessary to identify employee attitudes towards technological change, and furthermore to focus on how the UAE public sector is currently dealing with the employee attitudes.

There are many factors that can create resistance to change .The factors that were selected to test the possibility of having a comprehensive model (framework) that can predict resistance to change in UAE were grouped into two main categories, which were individual sources and organizational sources .

A survey questionnaire was chosen as the instrument of choice to collect the data for this study. Collected data was entered into statistical package-version 15(SPSS) for statistical analysis. The data was then analysed using Pearson Correlation Analysis and Regression Analysis to test the framework hypotheses. The factors that were found to have a

relationship with resistance to technological change were identified and used in building the model (framework) that can be used to predict the main factors contribute to employees resistance to technology change and how through this framework companies economic efficiency and employees job performance can be effectively increased

1.3.7 Unit of the study

This study to date is one of the first to address technological resistance in UAE and to investigate their influences on employee's job satisfaction and employee performance. In line with addressing the technological resistance this research first identifies what factors drive technology change in organizations, second identifies the human (employees) and management (managers) factors that lead to resistance to technological change, third identifies what strategies management is using to overcome employee resistance to technology change and finally identifies how the implemented strategies are helpful in improving employee job performance (indicators of job performance). Major focus of the study is on identifying reasons for resistance and how it is showing an impact on employee job performance. Employee job performance includes dealing with the core job function during day-to-day work processes. Performance management is the process that focuses on employee performance, guides them to success and assists in achieving the organizations goals. Appraisal without these objectives is a mistake that provides little value to the employees, managers and the organization. A number of factors impact on individual performance and job satisfaction including but not limited to; personality, values, attitudes, perceptions, ability and motivation of each individual employee, which this research seek to explore within UAE public sector companies. Thus, this researcher examines in-depth how and why employees resist to technology change. Then, the researcher of this study integrates the employees' resistance factors into a framework. The framework will help managers and employee to have job satisfaction and therefore can perform well.

1.4 Organization of the Thesis

1.4.1 Chapter 1: Introduction

This chapter gives a brief introduction on the background of the UAE, the need for the research, the nature and purpose of the study and discusses the main aspects of the research such as the significance and justification of the research, the aim of the study, the research objectives, the research questions and the contribution to knowledge.

1.4.2 Chapter 2: Literature review

This chapter discusses the various aspects of the chosen topic. Discussion topics include the concept, types of, and reasons for, change, changes in technology and reasons for resistance to change. This chapter also discusses employee job performance and indicators of job performance effectiveness.

1.4.3 Chapter 3: Research Methodology

This chapter discusses the epistemology of research methods, different research methods and methodologies used in the research, research ontology and approaches such as positivism and phenomenology and, finally, discusses the research strategy. This chapter also discusses the rationale for adopting the case study method, explains how the selection of companies for the research has been undertaken, data collection procedures, the questionnaires used for the research, population and sampling and, finally, the data analysis.

1.4.4 Chapter 4: Data Analysis and Framework Refinement

This chapter has two stages. The first stage includes the data collection methods adopted and followed and the analysis of both quantitative and qualitative data. The second stage includes the refinement of the framework. This chapter also includes the framework evaluation based on an analysis of the data from the interviews and the final framework is presented for companies' evaluation.

1.4.5 Chapter 5: Case Study

This chapter discusses the evaluation of the proposed final framework based on case study method in the selected companies and also presents an analysis of the data obtained from the structured interviews to assess the reasons for resistance to technology change.

1.4.6 Chapter 6: Discussion

This chapter discusses the major findings of the research that have been obtained from the collected data and discusses the current opportunities UAE public sector companies have by applying the proposed framework.

1.4.7 Chapter 7: Conclusion and Recommendations

This chapter presents the conclusion of the research based on the findings and discusses the limitations of the research. This chapter also presents the recommendations that could assist companies in overcoming resistance.

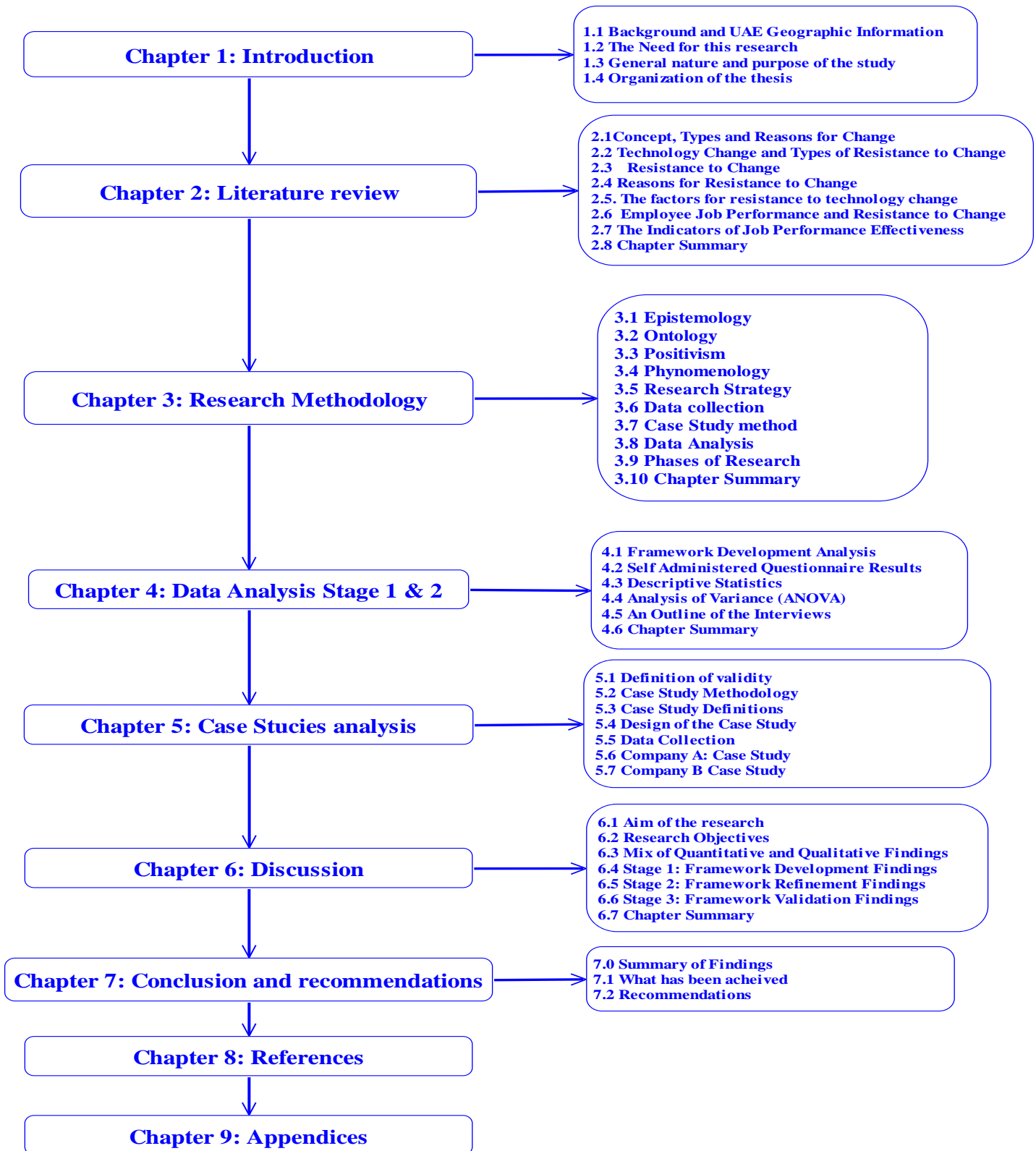


Figure 2: Organization of the Study

CHAPTER 2

LITERATURE REVIEW

2. INTRODUCTION

This chapter provides a literature review of research that has studied change, resistance to change and job performance. The literature review chapter is divided into seven different sections to let the readers clearly understand the concepts and ideas provided in the thesis. The first section of the literature review provides a clear understanding of the research in the field of concepts, types and reasons for change. This section starts defining change and its concepts, the types of change and the major reasons for change. Section two discusses the various aspects of technology change and types of resistance to change. In this section the literature review focuses on various aspects of the reasons for change such as corporate evolution, globalization, technology development and privatization. Furthermore it looks at the literature which discusses the different levels of resistance to change. Section three discusses various aspects of the resistance to change. Section four discusses reasons for the resistance to change. Section five discusses the various factors that affect resistance to technological changes. This section looks at what the literature shows on the various factors that lead to employee resistance to technology change in relation to human factors (behaviour, demographic, psychological, social and cultural aspects) management factors (which includes the high cost of change) and other factors such as efforts to learn new technology, fear of loss of power and fear of overload. All these factors give a clear understanding of the thesis and the background to the impact of technology change on employee and the reasons for resistance to technology change in organizations. Section six discusses employee job performance and resistance to change and includes a discussion of the strategies used to overcome resistance to change. Finally, section seven discusses the indicators of job performance effectiveness.

2.1 Concept, Types and Reasons for Change

First of all, what is change? De Jager (cited by Egan and Fjernerstad, 2005) explained change through the following terms *“it occurs whenever we replace the old with the new. It is about travelling from the old to the new, leaving yesterday behind in exchange for a new tomorrow.”*

According to Honey (1988), change is like most other things in life that tends to occur slowly and in an unsymmetrical way that leads to change in attitude, way of thinking and is often considered as a reaction to pressure that can no longer be positioned. It is the same with both individuals and organizations. A number of researchers have stressed the importance of change in organizations (Honey, 1988; Manuela and Clara , 2003; Price and Chahal, 2005; Stjernholm and John, 2005). New technologies and rising customer demands increase the pressure to make changes. Change helps organizations to navigate successfully and facilitate growth. Change champions must help resolve objections to change and encourage alignment (Stjernholm and John, 2005). Change is, therefore, one of those processes that benefit from some careful thoughts and deliberate planning (Honey, 1988). Thus, change can be seen as an important element for development and success that requires careful and well thought planning in order to bring about positive outcomes and a smooth progress to advancement.

Manuela and Clara (2003) suggest that the main aim of organizational change is adaptation to the environment or to improve organizational performance. They described two different types of changes in an organization.

- First order change (which also includes evolutionary incremental changes) – This includes small changes whereby minor aspects are looked at and the aim is to improve the present situation, but still keep the existing general framework.
- Second order change (which includes strategic, revolutionary or transformational changes) – These are radical transformations where the organization totally changes the necessary existing framework. Such change looks for new competitive advantages by altering the basic capabilities of an organization.

Patrick (2002) discussed the importance of change and the problems it brings. His study raises some very important issues, among which are: the meaning of change, the objectives of change, and the way to deal with change including the suggestion that organizations must have a sound change management policy. The main aim of organizational change is adaptation to environmental changes or improvement in performance (Manuela and Clara, 2003, p.148). In terms of scope, organizational change

can be differentiated as developmental change (improvement of existing situation), transitional change (implementation of known new situation for a controlled period of time) and transformational change (emergence of a new state which is not known until it is implemented) (Lles and Sutherland, 2001; Alas and Sharifi, 2002, p.315).

Turner and Craford (2002) also discussed the phenomenon of change and pointed out the need and importance of change for an institution. They emphasized the need to convince employees who resist change of its positive benefits in order to avoid the consequent effects of resistance which include decreased productivity, decreased performance, product and services' quality. This study is very important because it highlights the importance of employee acceptance to adapt to new operations through training sessions and colloquiums and by motivating employees in order to increase performance, production and quality within an organization. At the governmental level, there are a number of reasons for supporting technological change which include: minimizing costs (e.g., by reducing the need to hire support personnel), improving efficiency, exerting control, and supporting new services (Price and Chahal, 2006).

Administrators of change know that change can improve the business but usually they are not the ones which are affected by the change. Thus, there is a need to convince the ones which are affected by the change to make things work. There can be many reasons for resistance to change, such as uncertainty about job security and fear of the unknown.

Innovation comes from changes in technology and technology change has become an increasingly important topic over past 20 years due to the fact that innovation is vital and of significance for the survival of any organization, whether it is a public sector firm that needs to improve their services to public and attract attention or a private sector firm that needs to increase their market share. Innovation matters because change is required constantly. It was mentioned by many researchers that companies in any industry look at innovative strategies and strive hard to get success because innovation is imperative and it is necessary to either innovate or move out of the competition, that firms have to decide before taking challenges of innovation (Eveleens, 2010).

It is true that change happens slowly but such change brings vast changes in various aspects for both individuals and organizations. In lieu of organization, change is important as it brings improvements in business in terms of profits and performance. Initially business may face resistance to change but slowly it will get adopted by the changes that take place in businesses and employees will change their attitude towards the new change processes.

2.2 Technology Change and Types of Resistance to Change

The term technology change refers to overall process of invention, innovation and diffusion of technology or processes (Jaffee et al., 2002). According to Mark, (1987), introduction of new technology has become vital in all sectors so as to reduce cost and compete with the national and internal markets. Johnstone and Michel (2008) are of the view that technology change is a most important initiator that allows people to do innovative things that have not been done before or would have done in a less efficient manner. Another group of analysts (Taylor and Hascic, Johnstone and Michel, 2008) expressed the view that technological changes are helpful for all walks of society and asserted that these changes are more evolutionary than revolutionary in nature, thus creating more job opportunities than the opportunities that they eliminate. Mark, (1987) suggested that the pace of technological change is accelerating and both white and blue collar workers are affected (often under the term of labour saving innovations). In addition, Mark, (1987) pointed out that techniques for maintaining job security will still be required. According to Peter (2011) adopting new technologies with new strategies and approaches enable a business to produce effective outcomes. The outcomes of businesses depend much on the rate of implemented technology change; this rate of change can have differing impacts on the organization in terms of production and performance.

In view of Yuan, Yongbin and Liu (2005), technology innovation or change has an important influence on organizational performance. There is a close relationship between technology change, human resource management and organizational performance. It is said that technology change can improve a firm's competitive advantage and increases

the overall performance of organizations. Information system (IS) researchers (Jiang et al., 2000) have considered technology change as an irrational process and understanding and effectively managing resistance are, therefore, important determinants of the success of system. Jiang et al. (2000) further are of the view that resistance to change should be expected.

- When change is undertaken without involving employee
- Situations where change includes many interpretations
- When employees feel strong forces deterring them from the change
- When great pressure is placed on employees to make the change(s) instead of clearly directing them to adapt steadily to the change, and finally
- When change is made on personal grounds as opposed to the benefit of the organization (Dent and Goldberg, 1999, p. 33).

Thus, given the viewpoint, researchers (Metha, 2006; Kailash and Thomas, 1998) have called for further research to better understand the complex issues surrounding technology change and new technology implementation. Kailash and Thomas (1998), are of the opinion that adopting new technology is a challenging task for organizations as it alters job design and the role and responsibilities of employees and can lead to negative consequences for employees. Metha (2006) is of the opinion that technological change can also lead to changes in job satisfaction, stress, working conditions, productivity and operational efficiency. However, these fears can be mitigated by public sector management by imparting training to their employees in different phases and at different levels. In the view of Metha (2006) IT should be evaluated with respect to ten major factors that influence technology change. These factors include scalability, extensibility, reliability, adaptability, flexibility, maintainability, performance, simplicity, backward compatibility, and features or usability.

Thus Peter (2011) suggested that sometimes the idea of resistance to change can be a good one as technology innovation or change has an important influence on organizational performance. However, technology change can be an initiator that allows

people to do innovative things. It is also important to see that resistance to change should be expected when the change is undertaken without involving employees.

2.2.1 Factors Driving Technological Changes

A question arises, “is there any resistance to a change to new technology and to new approaches of doing business”? As per the Management of Change, Wargin and Dobiey (2001) discussed three reasons why people resist change with respect to technological changes. Firstly, people resist change because they do not have the required skills to use, or gain the benefits from, the new technology. Secondly, traditional companies and industries’ employees do not understand the application of new technology and how such business is undertaken, processed and executed. And, finally, new technology changes organizational structure as top and middle level management inclined to redefine business models.

According to Prosci (2002), resistance to change is a natural reaction and the integration of new technology causes concern for many employees. Much research has been carried out on change management and on the factors which influence change management. According to Gray (2006), there are many factors which drive technological changes and these come from different factors which mostly include corporate evolution, globalization, privatization and technological developments. In his study he suggested that there is a need for change management when implementing new technological solutions and that management should discuss with the employees the issues encountered during this type of change.

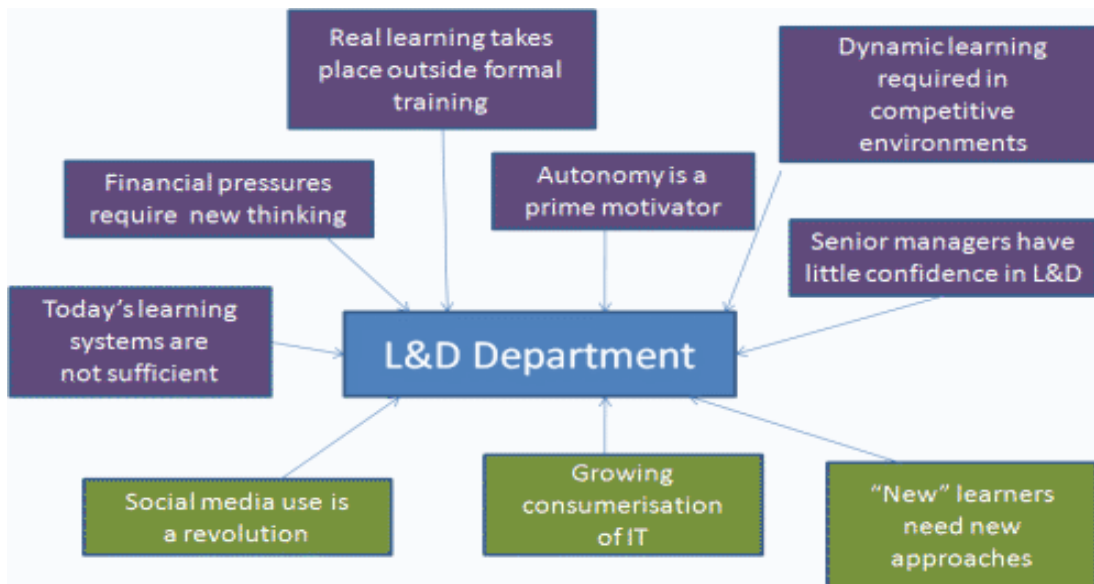


Figure 3: Factors driving change in workplace learning

(Source: adapted from <http://learningevangelist.com/wp-content/uploads/2010/09/10-factors-driving-change.bmp>)

2.2.2.1 Corporate Evolution

The overriding goal of the *"cultural evolution"* is to create an *ambidextrous organization* that is inventive and able to respond to the changing demands of the marketplace. (Smith, 2001, p.23)

Smith (2001), in his study, discussed the influence of corporate change on employee resistance to change. He stated that the most important and common feedback from employees concerning the process of implementation of a new corporate culture is of a sense of a development imposed on them without thinking about the impact of this change on the particular work environment. Smith (2001) also stated that the end result of such an environment may mean that the organization receives compliance from the employees to whatever they have instigated but not their full commitment.

Organizations need to bring in the changes they need in order to adapt to global restructuring but, at the same time, they need to keep the level of commitment and motivation among the employees the same. In order to do this, management should understand how major strategy shifts bring in changes in the cultural norms in which the employees operate (Mullins and Brenda, 2001). According to Wargin and Dobiey (2001), a prompt change to technology-driven solutions means that employees must be able to multi-task and this brings change process development into a fitting corporate culture which, in turn, assists the organization to achieving its strategic goals. This is well said by these researchers as without multi-tasking there will be a negative cultural shift in the organization and this leads to an unhealthy environment. Mullins and Brenda (2001) also believe that developing smart and healthy strategies in an organization leads to higher morale and to greater productivity.

According to Oliver (2000) the implementation of corporate evolution culture is a logical process. This should be undertaken by top level management and should be supported by all the members of the organization. Organizations should be made a party to the strategy/strategies being implemented so that it/they can reach grassroots level. It is true that successful corporate transformation requires great effort and clarity from the top management in an organization. Furthermore, Oliver (2000) stated that a unified executive group who share a common vision of change priorities and change technology stands as a strong competitor. Therefore, if all the sections of the process are followed, a determined strategic and corporate culture change is achieved. If any one of the part is left out or ignored, the productiveness of the organization decreases and thus the organization fails to achieve the goals and objectives of the change which, in turn, creates a negative impact on the corporate culture.

In the new corporate culture there are big changes that are making it easier to challenge. Because of the increasing need for more innovative products, companies have moved from their traditional way of research and development and have built up new strategies during the development process (Ciarli, Paul and Chris, 2009) According to Brynjolfsson (2009), one of the important factors in corporate technology is challenging conventional wisdom which results in easier, cheaper and immeasurably faster products. When such a

change is observed, companies' corporate culture changes and employees start to participate in change with an active encouraging speed.

According to Malecki (2009), one of the factors that drive change in an organization is corporate evolution. This occurs due to market implications that force organizations to change their policies with regard to culture, values and approaches. The growth in competition in the markets in which a company is operating and financial providers brings about corporate changes. All the factors mentioned are in response to innovation, consumer needs etc.

2.2.2.2 Globalization

In today's business world, companies need to undergo change constantly if they want to remain competitive. One factor which rapidly affects emerging technology is globalization which forces organizations to respond quickly in order to withstand and survive in the market (Peters and Watermann, 2004). According to Thomas, Bateman and Carl (1990), nowadays businesses are influenced highly by changes coming from a large number of sources which may come from inside the organization (a kind of pressure that comes from top or bottom level employees who bring about a force for change) or from outside pressure (which affects the company in terms of revenues, market share, reputation etc. and which comes from legal, technological and economic environments).

Resistance to change can be foreseeable and employees tend to see the changes in the organization in global context. In globalizing a business, management must take care of employees by motivating them and making them understand the importance of change and its benefits in the organization. Job security and new opportunities for promotion are the greatest fears in the minds of employees which need to be addressed. In such a scenario the company chairman's message should be that human resources are our greatest assets and, with technology development, the aim is to reduce costs, increase profitability and enhance productivity. During this process management has to take the initiative in communicating with the employees directly (Peters and Watermann, 2004). According to Gray (2005), many companies who have plans for globalization keep

changes secret from their employees and due to this they create problems in the workforce. It is important for organizations to take steps in order to avoid such situations. Organizations should be more specific on the in-coming changes and explain their benefits to the employees, for example, that such changes will provide better career opportunities and enhance pay and bonuses.

According to Higgs and Rowland (2000), leaders must not only inspire confidence among employees but also must inspire and motivate the employees to put trust in them regarding changes due to globalization. Leaders must show their employees that there will be better future business prospects because of the business going global. So, leaders can discuss with their employees the opportunities of business development, expected outcomes and motivate them to update to the new technology as this can help employees to avoid resistance to change.

Rewarding employees for their work sends positive signals to other co-employees that they will also be recognized and rewarded for efforts made in reaching company milestones and goals (Malecki, 2009). Management, therefore, needs to reward employees and this should enhance enthusiasm, motivation and encourage a friendly environment within the company and assist the organization towards going global.

Many economies in the world have become globally independent and companies nowadays are competing directly against foreign competitors. To be competitive with foreign companies, domestic firms are continuously improving technology. Such changes bring many benefits like decreasing operating costs, attracting more customers, increasing lending opportunities, enhancement of creditworthiness etc. Technological improvements, alongside competition with global markets, are increasing extensively in all sectors and are creating opportunities in foreign markets which, in turn, can provide off-shore growth for companies' future success (Malecki, 2009).

2.2.2.3 Technological Development

Nowadays technology is changing fast and it is very difficult to keep track and to stay constantly aware of new technological developments. Technology changes continuously

and all the time there will be continuous improvements in the abilities of companies to do things faster, better and cheaper (Chapman, 2002). It is a must for companies to adopt and implement technological developments in this competitive world (Chapman, 2002). According to Beer and Nohria (2000), change is happening faster than most of employees care to think about change or its importance. Most of the employees do not want change as they assume the premise that change will always have a negative impact. The main reasons for this resistance to change are fear of failure, fear of being made redundant and fear about an uncertain future (Beer and Nohria, 2000).

When the company introduces new technology and this new change is viewed as a positive one by the employees it enhances the overall development of the company. Once employees understand more about change and its potential impact this brings success to the organization. Most resistance will occur when change is seen as negative as many employees think that change increases work pressure by adding unwanted work, responsibility and accountability (Chapman, 2002). Furthermore, Chapman (2002) stated that most employees oppose new technologies because they feel that change will not solve all the problems in one particular period of time. The question arises as to “how to deal with resistance to change with regard to technological development?” Many researchers have given suggestions on this. For example, according to Oliver (2000), organizations must involve employees in making the changes as this causes the employees to understand the need for change. Furthermore, Oliver (2000) said that employees’ resistance is not only towards technological change but also towards social change, as this develops a positive relationship among employees which in turn affects change. Oliver also suggested that management can take steps and encourage employees to think in different ways, that management can look at positive ways of overcoming resistance and can serve as positive influences in directing and timing technological changes.

According to Shane (2009), technology development can be seen in every sector and organization. Both quantitative and qualitative approaches are used for the development of organization; for example, database assessment tools for evaluating the performance of an employee is a technology-based development in HR. Technology development is new

generation, which can facilitate the entire system of an organization in collaboration with organizational changes. Currently organizations who adopt technology have extended their level of communication beyond normal correspondence and have facilitated online collaboration, community building and share best practices globally in terms of collaborative learning (Young, 2009).

There are factors in technological change that affect business positively and negatively. Positive results are shown when everyone in the company accepts change and focus on the development of the organization. The decisions taken with regard to technology change shape the markets in economy as a whole. Technology development has many features that develop technical standards, improve accessibility and also increase communication capacity. The availability of new machinery, techniques and strategies allows a company to compete with others globally and to enhance their market share in global markets. Technology development brings multiple resources. To a company and stabilizes costs (Suebsin and Gerd Sri, 2009).

2.2.2.4 Privatization

In terms of organizations, employees tend to resist change due to privatization and this can be a dominant factor which affects employee resistance. According to Buchanan and Huczynski (2004), one of most powerful forces driving change in the roles and relationships in a structured organization is privatization. In addition, Buchanan and Huczynski stated that public service employees have wide social networks, a higher quality of working life and feel that their employment is safe and secure. Once an organization is privatized employees feel insecure about their jobs. In other words Buchanan and Huczynski (2004) argues that privatization invokes sense of job insecurity and this is mainly because of new changes either in management or introduction of new technology or need to learn new concepts and procedures (that take place after privatization) which employees do not intend and they resist change. Organizations, in order to avoid resistance, recognize that there is a need to reconcile the goals of structural and systematic changes in order to introduce greater job flexibility and enhance

employment security as well as assisting in decentralized decision-making (Goodstein and Burke, 1991).

Abeyasinghe and Paul (2005) stated that private organizations can easily adopt technological changes within the company and can hire employees with the required skills needed for these changes, whereas for public sector organizations adopting and implementing new technology is not that easy and employees will not necessarily have the required skills; this can cause them to feel insecure about their jobs and dissatisfied with their work and thus resist change. In this regard, public sector organizations work hard to avoid the consequences that may come due to technological change. Organizations are focusing on the long term implications of the concentration of wealth and power and on the increasing domination of public service provision by transnational corporations. Paul (2005) stated that increasing opportunities for employees by motivating them and involving them in all aspects of change that the company necessitate in order to gain its future goals can have a positive impact on their perception of the organization and on its goals and objectives.

According to Bhardwaj (2003), the consequences of privatization that impact on employee relations, pay and other terms and conditions vary greatly. There are a consistent set of factors which affect the impact of privatization on employee resistance which include the time of privatization, employee relationships with management, attitude towards the organization, technological changes, etc. All these factors influence the outcomes of the employees in terms of productivity, scope for expansion and other variables specific to the organization.

According to Mullins (1999), technological changes will have an impact on an individual level particularly when an organization decides to privatize for the sake of improving performance in order to overcome fierce competition. This brings many changes in an organization such as organizational structure, corporate culture, mission statement, and so on. Furthermore, Mullins stated that, in order to support these changes, organizations should bring in new training programmes to help the employees as well as the managers to understand the nature of change and why the company is following this path and what

its future goals will be. The company has to stabilize changes by establishing systems that can create new different behavioural patterns in the organization. For example, a new performance appraisal system based on behaviour and results can be created to emphasize customer service and subordinate development. Currently organizations are undergoing tremendous changes for various reasons. So it is vital to identify the factors that drive resistance to change. For this, there needs to be an understanding of the present external and internal scenarios to know why people resist change particularly with respect to technological change. There are various matters, as discussed above, that can help organizations to identify issues and make decisions on how to deal with the type of factors that affect their organization.

2.2.2 Types of Resistance to Change

“Active” resistance, “passive” resistance and “aggressive” resistance are the different ways through which resistance to change is exhibited (Goldberg et al., 1999). There are three levels of resistance to change. These types can be broken down into three groups: organization-level resistance, group-level resistance and individual-level resistance. Understanding these different types of resistance can help in understanding the ways to reduce resistance and to encourage compliance with change.

- Organizational Level resistance – This includes resistance to change due to organizational culture, power and conflict, structure and differences in functional orientations.
- Group Level resistance - This includes resistance to change due to group thinking, group cohesiveness, escalation of commitment and also group norms (Mike, Paul and Rodger, 2006).
- Individual Level resistance (Goldberg et al., 1999) - This includes resistance to change due to selective perception and retention, uncertainty and insecurity and employee habits.

Employees resist change due to their low tolerance levels whereby they are not able to develop the new skills and new behaviour that are required for the new circumstances

resulting from the introduced change (Mike, Paul and Rodger, 2006). This resistance also arises because of employees' fear of learning new skills and fear or inability to adapt. Resistance is said to depend on the treatment that employees receive during the change process (Folger and Skarlicki, 1995) and on the relationship between employees and the organization (Strebel, 1996). Sometimes change may include psychological dynamics known as “competing commitment” where change is not challenged but is resisted or not implemented due to certain issues which the employees face (Kegan and Lahey, 2001).



Figure 4: Resistance to Change Continuum

(Source: adapted from

<http://www.thousandtyone.com/blog/content/binary/books/buildersatwork/ResistanceToChangeContinuum.jpg>)

Among the types of resistance to change at organizational level are cultural, structural and strategically resistance. Resistance to change in organizations can be seen at four different levels which are human resources, technological resources, functional

capabilities and organizational capabilities. At the functional level, the changes to resistance can be seen in a sub department's orientation. At the human resources' level an employee's insecurity, perception and uncertainty can be observed, and at the organizational capabilities' level it is the restructuring, reengineering, downsizing and revolutionary changes that can be observed. Finally, when looking at technological resistance to change, it is the changes in technology and the perceptions of managers and employees with regard to all types of change as well as that play a significant role (Pham, 2011).

2.4 Resistance to Change

Resistance is defined as behaviour intended to prevent the implementation or use of a new system or to prevent the system designers from achieving their objectives (Goldberg et al., 1999; Egan and Fjermestad, 2005). According to Manuela and Clara (2003), resistance is a phenomenon which affects the change process by delaying its beginning or hindering its implementation which, in turn, increases cost. Resistance is also defined as a conduct which tries to keep the status quo and to avoid change.

People are reluctant to change. In every organization, people resist change. It is a human characteristic to resist change as “... *the natural human response to change is resistance. People become attached to familiar ways of doing things, even ways they initially regarded as cumbersome, costly, or ineffective* (cited by Egan and Fjermestad, 2005)”. Resistance usually comes from the transfer of previous experience. In other words, if something new such as technology comes into people's lives, it is natural for them not to want to use it; they want to do things like they did before.

According to Honey (1988), attempts to introduce change in organizations usually run into some form of resistance. Furthermore, Honey stated that resistance to change has become a common pervasive in most organizations when organizations implement change. Even though many managers are aware of this fact, only a few take time before organizational change is implemented to assess who might resist change and find reasons

for it. Thus it is very important for managers to assess the different reasons for resistance and find out who might resist change in organizations.

Resistance to change is an important factor to consider in any change process and appears to be more influential in strategic changes as opposed to evolutionary changes (Manuela and Clara, 2003). “No matter how carefully and slowly the idea of change was introduced, the immediate reaction? From the lower supervisors and operators was to resist it and this was like a conditioned reflex”. People do not resist change; they resist being changed. Sometimes people simply question what the change means to them. It is suggested that familiar ways of doing things provides cognitive comfort compared with the uncertainty of change (Alas and Sharifi, 2002, p.316).

Manuela and Clara (2003) concluded that, the more transformational and radical the change is, the higher the resistance to such change will be. It has been suggested that sources of resistance to change are linked to strong cultures which stress loyalty and cohesion as key values while at the same time limiting innovation and creative capabilities (Manuela and Clara, 2003, p.153). In addition, Manuela and Clara have suggested that the significance and importance ranking of sources of resistance to change is almost the same for both revolutionary and normal changes.

According to Manuela and Clara (2003, p.148), stress is considered as one of the reasons for the failure of many change initiatives. Cost and delayed processes are introduced through resistance to change; these are difficult to anticipate but have to be taken into consideration. The fear of extra investment will be taken care of by additional investments or by raising borrowing subject to the condition that earnings will increase several times over as compared to the capital expenses earned. Resistance can be considered as a source of information that is useful in learning how to develop more successful change processes. Resistance to change must be considered as a key aspect by management and should be seriously considered as a way to help an organization achieve transformation advantages. Moreover, analyzing the main sources of resistance to change and their relationship with the types of change is also important.

In today's world many managers in organizations complain that their employees resist change. Resistance to change is not just a matter of gaining consensus to start a change; the best way to avoid resistance is to assure employees by supporting them and motivating them, involving them and explaining clearly why the change is taking place and what the benefits are that they are going to receive. By doing this employees have a clear vision and a sense of direction of the job that has to be performed and they can also reduce their feelings of insecurity about losing their job. One of the more modest strategies is to build a supportive employee and management relationship which can be used as a way to avoid resistance to change. Process checking can be very helpful in guaranteeing that the contributors to change are fully involved and dedicated, and also in evading the groupthink problems that can "turn off" other functions of the organization (Ali, 2010).

It is most common for people to be reluctant and to resist change. Managers as well as employees have to accept change because change is inevitable for an organization. Thus management has to build a positive environment when a change is introduced by creating good relationships with their employees in order to facilitate the introduction of the new change.

2.5. Reasons for Resistance to Change

As Strickland (2000) stated "*People resist change because they experience a loss of identity, of belonging*". Schoor (2003) listed some more specific factors that contribute to resistance to change. They include:

- Self interest when workers see the changes as harmful in one way or another.
- Psychological impact which refers to the impact of the change on job security, professional expertise and social status in the organization.
- Redistributive factors when the workers think that they may lose some or all of their privileges through the redistribution of tasks and responsibilities.
- The destabilization effect caused by the introduction of new people who are not familiar with the organization's culture and operations.

- The political effect which refers to the power relationships in an organization and the degree to which they are threatened.

This issue leads to the question: how to deal with resistance to change and how to minimize or avoid the effects of resistance to change. Horgan and Simeon (1988) identified the types of people in organizations and later, using concepts from “expectancy theory”, “open system theory” and “social information processing theory” predicted the reasons for resistance to change in organizations. Based on the expectancy theory, Horgan and Simeon (1988) predicted that persons with low expectations of success and those who believe that successful performance will not lead to reward are likely to be poor adapters to change. According to the open system theory, in mutual relationships and when boundaries are optimally permeable, adaptation to change is easier than when compared to closed systems. According to the social information processing theory, people who receive negative information will be more stressed and anxious about an upcoming change. Conversely, a person who receives positive information tends to have a positive attitude towards change.

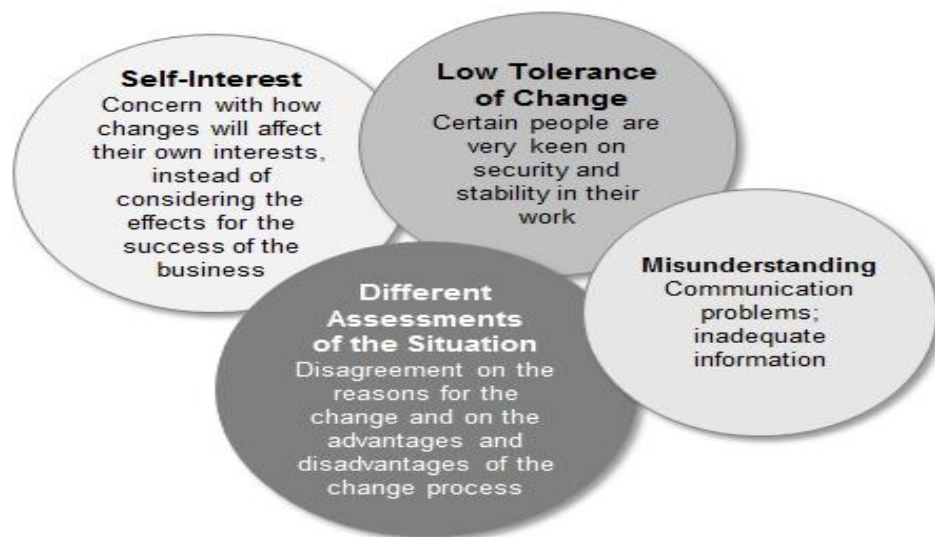


Figure 5: Reasons for resistance to change

(Source: adapted from <http://blog.emergentconsultants.com/wp-content/uploads/2011/04/image11.jpg>)

According to Rick (2011) there are many reasons why people resist change; it may be the purpose of the change is made not clear, in the sense of employees' understanding about change and not being involved in change process. When there is an appeal for change based on personal reasons, where the employees' habitual patterns are ignored and in cases where there are no organizational change processes like technology development, changing policies and, change management. When there is poor communication about change, the reason for resistance may be the fear of failure or high pressure from the market, competitors or any other external factors. When there is less recognition received in spite of hard work, less satisfaction is manifested by employees. Apart from all these reasons, resistance is common from the employees' point of view which may be because of a lack of knowledge, skills and competence. Thus it has been identified that employees generally resist change but the reasons for this could be many. Identifying individual reasons is difficult but identifying reasons in general can be easier. As discussed above, there are many reasons but the reasons, based on group and individual perceptions, need to be identified and addressed before implementing change.

2.6 The Factors Explaining Resistance to Technological Change

2.6.1 Human factors

2.6.1.1 Behavioural factors

According to Ristino and Robert (2000), the term 'resistance to change' is more frequently used in the context that significantly associates it with the employees' attitudes towards organizational change. As a general rule, it is not the anticipated changes that people resist but the impact that the changes will have on them personally. Employees start to become comfortable in their jobs, in their areas of specialization, and in their relationships with co-workers and managers. Even when personnel are not very satisfied with the current work environment and therefore welcome change, they may find change to be stressful. All these factors usually explain about the behavioral dynamics of an employee in a working environment. Piderit (2000) discussed resistance to change which includes cognitive and operative components which come from different stages of the resistance process whereby the employees' feelings, behavior and thoughts about the

change may not necessarily coincide. Oreg (2003) identified that people are different from one another in their personal inclination to resist or adopt to change. These responses can be seen in employees' perceptions and their attitudes towards specific changes which are both voluntary and imposed. Furthermore, Oreg (2003) stated that employees who have dispositional resistance to change will incur negative emotional reactions such as anxiety, anger, fear etc. and these dispositional reactions have a strong impact on employees' emotional responses.

According to Stern (2011), although management make many attempts to minimize the resistance to change, some of the reactions to change are inevitable. Positive reaction shows a positive impact on the behaviour of employees, whereas negative reactions show negative behavior and reactions. It has been identified that there are four reactions to change which are disengagement, misidentification, disenchantment and disorientation. Disengagement is a psychological withdrawal from change and in such cases the employees lose interest in the job and will not take any initiative in work. In this reaction employees fear change, will not undertake any challenge and simply do nothing except hoping for the best. In case of misidentification, employees react because they feel that their identity has been threatened by change and feel vulnerable, negative and angry. Disenchanted employees recognize that the past is gone, and they are angry about this fact. And finally, disoriented employees are confused and unsure about their feelings and waste time and energy trying to know what to do rather than actually doing things.

Therefore, management should be aware of employees' feelings concerning resistance to organizational change and they also should consider employees' emotions and their willingness to remain in the organization because these factors bring employee commitment to the organization to achieve the organization's long term objectives.

2.6.1.2 Demographic and Social Factors

Demographic and social factors such as age, gender and education levels also influence resistance to change. Attempts have been made to study the influences of demographic factors on the resistance to change by several researchers (Martin, Quigley, and Roger

2005; Lombard and Crafford 2003). According to Lombard and Crafford (2003), there is a relationship between demographic factors and resistance to change. As far as, age is concerned, employees who are 50 years and above tend to be more resistant to change (Lombard and Crafford, 2003). It is true that at the senior level managers do not accept change and want to be stable in their current position; this means that the older one is the more one is likely to resist change. Some employees who have higher educational qualifications and who are in a higher position in organizations, resist change because they do not want to lose or change their status and position in the company. They believe that if any change takes place that it is going to have negative influence on their status and they feel that their current position may be affected.

Another study reports that employees' performance and resistance to change is also affected by certain demographic characteristics such as age, gender, experience and race (Hassan and Roy, 2003, p.381). These factors can be organized into two groups: 1) static factors such as personality, intelligence, past experience, age and gender; 2) dynamic variables such as attitudes, informal social structures and present experience. Thus, to overcome these issues, it has been suggested (Hassan and Roy, 2003) that motivating employees will help as employees will then feel more comfortable and more likely to work with ease in overcoming the said factors. Horgan and Simeon (1988) suggested that informal social structures are an important aspect which helps to foster learning in organizations but that, in fact, most organizations overlook this aspect. They also stated that team building, introducing strong group support and maintaining established work teams are effective in developing positive and realistic expectations towards change.

2.6.1.3 Psychological factors

One of the important reasons for resistance is the emotional confusion that a change may cause especially if the past experiences of change are not positive. According to Oreg (2003), the psychological reasons for resistance to change are a lack of appreciation, a lack of trust in other employees, job security etc. It was stated by Mason (2006) that an employee may feel that management is not recognizing his or her performance and thus feels a lack of appreciation. Safety and security are high priorities for every employee in

an organization and they can feel uncertain about the impact of change, especially concerning job security. When employees feel that change may have an impact on their jobs they resist it; this fear always has a major impact on the employee decisions (Mason, 2006).

According to Lines (2004), resistance to change is a natural part of the change process as it involves the state of going from the known to the unknown and involves many psychological factors. Employees differ in terms of their ability to adapt to, and their acceptance of, organizational change. This is because employees experience changes in different ways; some may easily move through the change process and some move rather quickly, some may have objections due to multiple alterations in their job

Mason (2006) described psychological reasons for the resistance to change. Employees may have a fear that change in technology may bring tedious work and boredom into their field of work. They may also feel that they have to work hard to learn new skills if the technology changes and they may not be able to understand the applications of the new ideas and methods that are suitable for the new environment. It has been further stated that employees who have a negative impression of change technology will have negative psychological thinking and this will not bring positive results for the organization. So, there is a need for the organization to convince employees of the positive impacts of change by giving them motivation and need-based training for the required change environment (Lines, 2004).

Psychological factors which show a negative impact on adapting to change includes employees' fears due to a lack of appreciation or tolerance, differences which can arise between employees and management, fear of uncertain results because of change, and the need to feel secure in their existing position or job. Employees have negative feelings and thoughts about change that have an impact in their minds especially when things go wrong or have negative results. Once negative thoughts fill the employees' minds, it is very difficult for the management to overcome these psychological issues until and unless they provide motivation, give proper training and counselling about change and its positive impact on the employees career (Stern, 2011).

2.6.1.4 Social Factors

Every individual have social contacts like friends, enhancing a feeling of belongingness etc. An employee in an organization maintains certain social relationships with other employees, by this they become members of certain informal groups. When change takes place in an organization it brings fear into the minds of people because individuals do not like new changes and its associated adjustments as they think that it could break down their present social status and relationships (Martin et al., 2005).

Mullins and Laurie (2005) stated that new changes in an organization require new adjustments and involve stresses and strains; the workers can feel that the changes that the company is looking at will only benefit the organization rather than benefiting them. Mullins and Laurie (2005) also stated that workers can resist change which is brought in suddenly without consulting them. This creates tensions in the workplace and the new social setup that arises out of the change will cause less satisfaction in the organization.

As per the research of Gomez and Rosen (2001) it has been proven that, by introducing new technology in an organization, changes in the social environment are also brought about as well as changes in the work lives of employees. New technology brings about drastic changes in the social organization of work, in the accessibility to resources, in organizational structure, both formal and informal, and in management control patterns. In gaining an understanding of new changes in an organization and their role in changing the work environment, Martin, Quigley and Roger (2005) used the concept of “workplace visions” which consists of four possible changes in the way work is organized effectively.

- Metamorphoses
- Migration
- Elaboration/reinforcement, and
- Stability

Martin, Quigley, and Roger (2005) explained that recognition and support from peers and top level management can change the perception of an employee towards change in the organization, as this automatically bring the change into the social environment of the

employee. Special efforts should be taken to communicate with the employees in order to ensure that they feel secure and to maintain cooperation. It is true that differences between management and unions can be overcome if there is transparency and that this interaction can protect the interest of employees and other members of the organization (Mullins and Laurie, 2005).

Peter, Cheryl and Song (2010) discussed the fact that every organization has to work in a social environment and any changes made can display a great impact on the society because of the interest and disinterest of several social groups. The social groups and employees within an organization want to maintain the same relationships within their society, both formal and informal, and hence employees fear change may cause a negative impact on his or her image within that society. The values of society are based on certain facts within that society and on its groups; if change takes place employees have to accept the change compulsorily and it requires a lot of effort to alter themselves to fit in with the change process.

2.6.1.5 Cultural Factors

Cultural factors are considered to be the least tangible of all the types of factors that may bring about resistance but they can be the most difficult factors. An organization's culture consists of its shared assumptions, values and beliefs. Greenberg and Cropanzano (2001) discussed that, when an organization whose prototypical culture is followed if it tries to adopt a change, the change may require many organizational activities to alter; particularly manager and employee relationships can be altered with a change in culture because there are deep rooted values in the organization. These characteristics (shared assumptions, values and beliefs) show that these are serious problems that have a higher incidence in times of change and when organizations seek a fundamental transformation (Val and Martines, 2003).

A question arises "can cultural factors influence the resistance to change?" According to Mullins and Laurie (2005), in order to avoid resistance to change, management should pay special attention to certain areas such as how much the organizational culture fits in

with the change objectives and what can be done to adopt the change. This will help the organization to reduce resistance that may be caused by deep rooted values and cultural issues.

Another key aspect in change is training which can be a good tool to avoid communication difficulties and also the resistance caused by communication barriers. It also helps organizations to reduce the gap between the present situation, values, beliefs and capabilities that are required and the change processes (Greenberg and Cropanzano, 2001).

Cultural dimensions and their impact on management have been summarized in the research by Jelavic and Ogilvie (2010). Considering the power distance in terms of information systems Jelavic and Ogilvie stated that a higher power distance results in technology becoming a greater equalizer within an organization. Additionally, in terms of technology development and operations, high power distance results in management control over projects with low end user participation. In terms of technology transfer, high power distance results in a low level adoption of power reducing technologies such as discussion forums. In terms of the globalization of technology, high power distance is said to result in a low need of technology for decentralization and a high emphasis on organizational hierarchy. According to Manomenidis and Neroulia (n.d), cultural dimensions that deal with the dynamics of resistance to change over a power distance is expressed in a combination that includes deeper knowledge of the changing environment and a greater freedom to express views Manomenidis and Neroulia stated that power distance expresses the acceptance of the less powerful members of organisations *and that the power in the organisation is unequally distributed through deeper knowledge and greater freedom.*

The psychological thinking of employees, cultural aspects (both local and organizational), social aspects, the behaviour of employees and, finally, demographic aspects such as age and gender show an impact on resistance to change. sometimes employees feel that they cannot adapt to change (and some older employees also seem to resist change) especially if they perceive that it may affect their job or other issues. In

organizations management has to focus on such issues as well identify best suitable strategies to overcome them.

2.6.2 Management Factors

Bolognese (2008) stated that employees and managers can actively or passively resist change, but that resistance to change is inevitable. Training can assist employees in improving their performance and understanding levels, recognition and reward programmes can improve the behaviour, attitudes and skills that are needed for change to take place. Despite all these efforts resistance to change still exists and this is particularly of concern at the managerial level.

According to Carr (2002), resistant managers become significant obstacles to the implementation of an organizational change effort. The dynamic of managerial resistance to change is one reason for the continuing involvement of senior managers in implementing the change effort at each step. It puts everyone on notice that senior managers are committed to making the needed changes and will not become easily distracted from this important work. All resistance to change is not irrational, however, and there can be valid reasons why managers may resist a change effort. When senior supervisors and managers take part in guiding joint work with their subordinates in order to alleviate their valid concerns within the change effort, they eliminate much of this managerial resistance. But, in the very rare instances, where a manager continues to resist, senior leadership must directly address this behaviour as appropriate (Bolognese, 2008).

It is very important that the change manager anticipates and plan strategies for dealing with resistance. Management may have problems with implementing change which are related to cost, technology, lack of expertise, etc. These problems may apply not only at the introduction of the change but also throughout the change so there must be follow-through so that the change manager can monitor the change over the long-term and keep alert for difficulties that may appear in future (Carr, 2002).

2.6.2.1 The Cost of Change is High

According to Kaila (2005), managers and supervisors bring about change in order to improve their performance according to the market trends, conditions and competition from industry. Even when management think that change is inevitable they are afraid of the expenses that may be involved in the change process and in changing technology. The change process involves high costs and these costs are constantly incurred during the change period. Management has to implement action to bear the costs and expense during the change process. Costs that may occur because of installing new technology, for training and development that may take place to assist the employees to learn about the adjusted technology, installation expenses etc. are compulsory in the change process. Furthermore, it is the responsibility of managers to think about these requirements before implementing the change process within the organization.

Management feel that changes brings many costs to an organization, whether it be the planning to implement the changes such as planning for technology, machinery etc., the labour required for meeting the changes or the many costs that relate to advertisements, research and development etc. Although the change can be accepted by employees and management, they worry about the costs that will be incurred in the change process. Post-implementation costs also need to be borne. Once management has implemented change it has to bear the expenses then involved particularly if there has been a bad change process (in spite of many tests undergone beforehand) (Harwinder and Khamba, 2009).

2.6.2.2 Fear of Loss of Power

Carr (2002) stated that, during the change process, managers have a fear of losing their power or designation which is one reason why they may not want any changes to take place in the organization. When an organization is planning to implement change it is the responsibility of managers to know the requirements that are necessary for the change process without having the fear of loss of their job or power. When they do so there are higher chances of retaining them in the organization for a longer period.

According to Harwinder and Khamba (2009) it is a genuine reason when managers and other employees resist change because of a fear of loss of power and status in the organization. When a change process takes place, it is essential for the employees as well as managers to make themselves comfortable in accepting the change with the help of training and other knowledgeable sources. They can fear that they might be replaced with other employees who are young, energetic and have a sound knowledge about new trends and or about approaches that helps the organization in meeting their requirements for the change process; hence they are resistant to change. It is the duty of everyone in the organization to learn the new techniques associated with the change process which will ultimately help them in long run.

2.6.2.3 Requirement of Extra Effort to Learn and Relearn

It is compulsory to learn and learn and acquire knowledge about the new changes that are taking place in an organization. It is the responsibility of the managers to acquire such skills and also to help employees and subordinates in the learning process of change management (Kaila, 2005).

In order to deal with change employees need to retrain themselves in order to constantly update their knowledge in all the areas which are essential for the organization's future. Where there is absence of such retraining and knowledge there is a chance of both economic and social threats for both the employees and the management and hence management should motivate their employees to be involved in the change process; this will ensure the success of future developments and improvements in the organization (Peter, Cheryl and Song, 2010)

2.6.2.4 Fear of overload

Kaila (2005) stated that most managers have a fear that they will get overloaded in the change process by having to learn new things, attend training sessions, ensure that the employees learn, acquire new knowledge and spend more time in the office etc. For all these reasons they resist change. Kaila (2005) explained that there are many advantages in the change process that may be obtained in the future. One benefit is that employees

and managers can acquire new skills and knowledge which can help them in adopting new strategies in the future and to become more successful in their work environment.

Honey (1988) listed different reasons for resistance to change including:

- Low tolerance for change – Employees resist change when they fear they are not capable of learning or cannot cope with new change or unfamiliar consequences. Sometimes, the need for change is intellectually accepted but, due to emotional circumstances, people feel unable to actively accept change. These types of people tend to fight hard to maintain the status quo even if they are not able to articulate the reasons behind doing so.
- Parochial self interest – Employees think they could lose something of value as a result of change. It is seen that, in this type of situation, people mostly focus on their own interests and not on the interests of the organization as a whole.
- Different assessments – One of the most common reasons why employees resist change is because employees assess change in a different way than that of the change initiator. This mostly happens due to miscommunication between the managers (or, in another sense, the change initiators) and the receivers. For example, sometimes managers just assume that the change information that they know is also known to the people who are affected by the change. This difference in knowing information certainly leads to different assessments of the change process.
- Misunderstanding and lack of trust – Employees sometimes do not understand the implications of change and perceive that change might cost them more. Furthermore, misunderstandings and distorted perceptions can occur due to a lack of trust between change initiators and the people being affected by it or being at the receiving end of change.
- People can also resist because they assume that past decisions taken by management are not right.

In his research “The Management of Change”, Honey (1988) explained the various driving forces for change and the restraining forces against change. These concepts can be clearly explained by the following Figure.

| Driving Forces (for change) | | Restraining Forces (against change) |
|--|---|--|
| Desire to be more efficient by passing responsibility down the hierarchy | ↔ | Reluctance of senior managers to delegate |
| | ↔ | |
| The need to increase customer satisfaction | ↔ | The need to utilize current production practices |
| | ↔ | |
| Low motivation and morale amongst graduate staff | ↔ | Reluctance to give graduates real responsibility early in their career |
| | ↔ | |
| Desire to be more flexible and adaptive | | The need to get it right, not make mistakes |

Figure 6: Driving forces and restraining forces of change

(Source: adapted from Honey (1988), “The Management of Change”)

Manuela and Clara (2003) differentiated the sources of resistance to change at two different stages, one stage being the “formulation stage” and the other being the “implementation stage”. Three different set of sources were found at the formulation stage and two set of sources at the implementation stage. The primary source of resistance at the formulation stage explains that change starts with the perceptions of its need and the major initial barrier to change would be wrong perceptions. This includes:

- Inability of the organization to look into the future with clarity.
- Inability to accept any information that is not desired.
- Tendency of the people to go on with their present thoughts even though the situation has changed.
- Implicit assumptions, communication barriers.

- Organizational silence when the flow of information is limited to individuals. In other words, it can be said that decisions are taken without taking all the necessary information into consideration.

The second set of sources in the formulation stage mainly deals with low motivation for change. Major sources at this stage includes changes in direct cost, changes that bring success to a product and, at the same time, bring losses to others, and lack of motivation for change which is also known as cross subsidiary comforts. In addition, past failures can have a negative impact on future changes. Other sources of resistance can also include the different perceptions of employees and management, and a lack of motivation in employees for whom there is no value in the change results.

The high cost of technological change can be one of the main reasons for resistance. In addition, some managers know that implementing change is difficult and requires a lot of effort. Some managers have a fear that they may lose power over employees as a result of technology change. All these factors show that there is a need to understand the major factors of resistance to change and to identify suitable strategies to overcome it.

2.7. Employee Job Performance and Resistance to Change

It is accepted that change affects employees' performance and job satisfaction when employees are subjected to a change in their job profiles (Mike, Paul and Rodger, 2006). In such cases, management and decision-makers need to take certain actions e.g., training, guidance and support through which employees can adapt to the new changes (Kegan and Lahey, 2001).

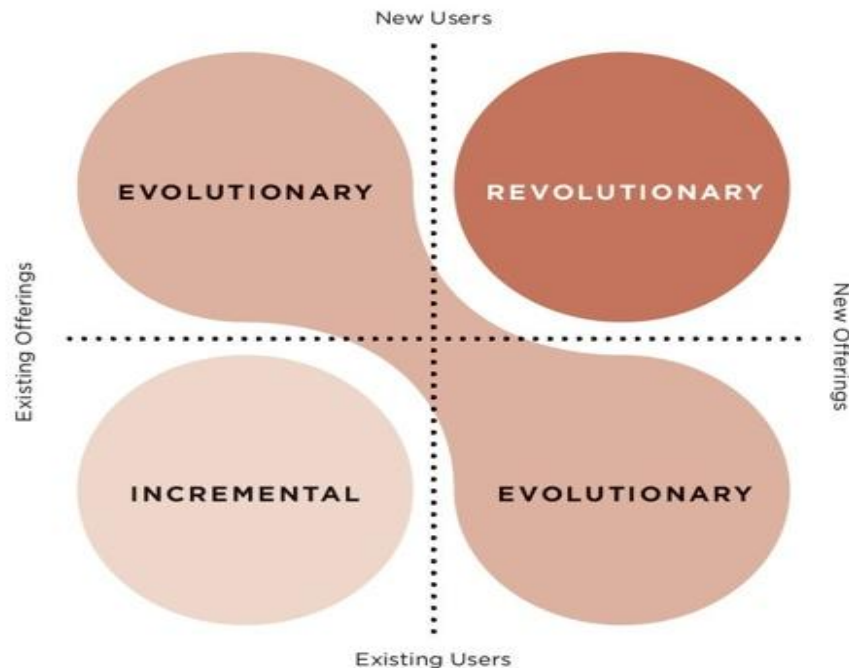


Figure 7: Reasons for employee resistance to change

(Source: adapted from: http://www.everythingisdesign.com/wp-content/uploads/change_mgmt1.gif)

There is a strong positive relationship between HRD practices and employee performance (Yuan, Yongbin and Liu, 2005). New HRM practices such as appraisals, motivation, proper training, mentoring and guidance can help organizations and employees to improve performance (Honey, 1988). In addition, conducting regular training programmes has been shown to have a positive impact on employee job performance.

2.7.1. Strategies to Overcome Resistance to Change

According to Eisenhardt (2000) there are several ways and means that managers can use to reduce resistance to change. Education and communication can be used. Management should explain to employees why the change is needed, should identify the benefit of the change to individuals and departments and should be willing to answer all the questions raised by employees. Communication between management and employees can occur in the form of discussion groups, memos, formal reports, scheduled meeting, one-to-one meetings, etc.

Many theories have been put forward not only to try to explain why employees resist change but have also contained different strategies to overcome resistance to change. It is important to know the impact of resistance in an organization. According to Krantz (1999), resistance to change weakens the base upon which the employer and employee relationship (called a personal compact) is built. All the formal compacts that are defined by the company such as job description, employment contracts and performance agreements which are very important for organizational tasks and performance requirements are lessened in value if the employer/employee relationship is weakened. Feelings such as trust and dependence between employer and employee, which is the foundation of an employee's personal commitment to individual and company objectives, can distract from the organizational structure. As a further point, employees can have negative perceptions about the culture of an organization and this will show as a negative impact on the success of the organization. Thus, it is important to acknowledge and fully understand the nature of resistance. Once it is identified there are several strategies that can be used to overcome resistance to change within organizations (Eisenhardt, 2000).

2.7.1.1 Motivation

Yusoff, Kian and Idris (2013, p.18) *motivation is referred to as willingness to exert high levels of effort, toward organizational goals, conditioned by the effort's ability to satisfy some individual need.* So this shows that motivation has three key elements efforts, organizational goals and needs. Yusoff, Kian and Idris (2013) are also of the view that motivation includes boosting employee performance through assistance, guidance, discussions with employees as this helps in improving employee performance. So it is the responsibility of managers of organizations to keep their employees motivated. Hutchin (2001) is also of the view that motivation can be undertaken through giving proper counselling which includes discussing with employees on problems they are facing in performing work. Motivation can also be given through promotions and appreciations (performance appraisals). Yusoff, Kian and Idris (2013) are of the view that by maintaining stability and seeking consensus, managers can overcome resistance and this is possible only through effective feedback system, communication channels and appropriate trainings. These factors will help employees to get motivated and accomplish

given task effectively. Gabriel and Carr (2002) stated that discussing with workforce establishes respect and is a powerful tool to build self-esteem in employees. Management should ensure that they always act fair with everyone to avoid any unconstructive feelings and mistrust which are the fundamental ingredients of resistance (Yusoff, Kian and Idris, 2013).

According to Rebecca and Rolf (2009), motivated employees easily adapt to change and unmotivated employees resist change. Motivation can differ from time to time and from person to person when the change process is about to take place. This means that, at the initial stages of introduction to new technology, management has to guide, motivate and train employees and inform them why the change is needed and what their duties are with regards to the change process (Yusoff, Kian and Idris, 2013).

2.7.1.2 Training

According to Butterfield (2010), at work change is constant and, accordingly, employees need to change themselves within the working environment. It is not so difficult to change according to the working environment. One strategy which can overcome resistance to change is training and development. New technology and new procedures should be learned in order to improve productivity and quality in the workplace. It is essential for managers to implement “innovative” training sessions so that they can build a strong environment in the organization. These training sessions will provide a kind of motivation for their employees to improve their performance and achieve the organizational goals effectively.

Dent and Goldberg (1999) stated that raising awareness and changing beliefs create understanding and a caring attitude that will assist in easing initial concerns. Management must educate individuals and groups in an organization about the organization’s current and future perspectives and they must also create an awareness in the individuals and groups that change is a positive factor and inevitable in today’s marketplace. Dent and Goldberg also stated that, by making resisters part of the project and motivating them by providing enough training to improve their skills, a successful change process can be

implemented in the organization. They stated that it is true that motivation and training are two important tools in the effective implementation of change in an organization. According to Palmer and Dunford (2008), managing change is a sound management practice and a well organized planned approach to the change process together with managers who create a positive, assertive and confident style of management will create a good impression on the employees and can bring down the pressures felt by dealing with change.

According to Dean and Linda (2010), training should be an on-going process with regard to motivating employees to accept the change. The training should include planning for the new changes, objectives, resources and also a consideration of the results. Each employee should be aware of these steps before changes in the organization are made. Effective training brings great results in the acceptance of change by employees. Additionally, through training, employees will come to know exactly what the company is expecting them to do. During the explanations in the trainings employees will come to know the procedures and each step will be explained showing why it is important. This measure will deliver a clear and simple statement of affairs. A demonstration of each step of the procedures in the new plan(s) allows employees to adopt to change as quickly as possible and avoid future consequences. Training can motivate employees because it helps them to understand their work and to envision the future.

2.7.1.3 Communication

According to Cornelissen, Kafouro and Lock (2005), organizations should establish consultation with, and participation by, the work force when it is planning a change process. Communicating with the employees regarding the present situation and the future desired state brings trust among the employees which is important and there is a chance of getting important advice from employees that may suit the change process. New channels of communication must be established in order to avoid isolating sections of the workforce so that everyone in the organization should be able to access the information available and discuss it. When implementing change effectively management

must understand the feelings that individuals experience when confronted with change as these feelings influence their subsequent actions (Krantz, 1999).

Horgan and Simeon (1988) stated that communicating with employees effectively will help in overcoming resistance to change. It can be observed that ineffective communication leads to low level job satisfaction and this could affect employee job performance especially when a change in technology, management or work structure (role and responsibilities) occurs. Ineffective communication also leads to other factors such as job stress, a lack of a work-life balance, fear of coping with new changes etc. Thus communication plays a vital role here.

According to Rick and Jeanenne (2011), one of the important strategies in overcome resistance to change is communication, because communication is the key that is available to anyone in order to clear their negative impressions about change. Resistance occurs when there is a lack of communication between management and employees because employees feel that they are not involved in the process and have not received any communication about anything in the change process. Employees' feelings can be understood by communicating with them and understanding their perceptions. Furthermore, Rick and Jeanenne (2011) stated that employees who communicate with management have a positive impact on solving the problems of change process.

2.7.1.4 Rewarding Policy

Rewarding employees based on performance is one of the strategies which management should apply to overcome resistance. The implementation of a reward policy will acknowledge the work undertaken by employees. According to Stavrakakis (2008), compensation and recognition in the form of money or something of equal value brings satisfaction to employees and boosts their morale. Rewards are a kind of extrinsic motivators that management can give to support and to overcome the negative feelings and attitudes towards organizational change. Stavrakakis (2008) also stated that, by evaluating and examining the success of the execution of the process at planned intervals,

strategic resolutions can be designed to measure the success of the process over time and allow for making corrections for unanticipated consequences.

Dennis, Schraeder and Mike (2009) stated that one motivating strategy is rewards. Each employee can be motivated by different things and a rewarding strategy is best motivation of all. Most employees are motivated by rewards (usually by cash rewards). However financial rewards do not always motivate and for management it is a costly affair. In this regard Dennis, Schraeder and Mike (2009) suggested that there are many things that management can do to let their employees know their efforts are recognized and to ensure that rewards will be appreciated. Continuous interaction with employees and giving them recognition about 'a good job well done' can really motivate employees. Consequently, if motivated, employees will put in their talent, effort and spare time and the employer, in turn, will provide total rewards that are valued by the employees. A total reward includes compensation, quality in the work-life balance, benefits, career opportunities, and recognition. This strategy brings satisfaction to employees and increases their work productivity.

It is clearly understood from the literature that resistance to change is a common thing. How to overcome this resistance is a big task for management. As discussed in the earlier sections, organizations have to initially identify the reasons, factors and driving forces that cause resistance to change and then plan and formulate strategies that help them to overcome such issues. If an organization successfully implements effective strategies, as discussed above, this will not only help employees improve performance but also helps management to overcome issues of resistance.

2.8. Indicators of Job Performance Effectiveness

Parmentor (2010) states that so as to make a change process a successful strategy it is vital for organizations to develop and utilize KPI's (Key performance Indicators) at workplace. Parmentor (2010) insisted that the process of developing and implementation of KPI's should include four foundation stones. First, developing partnership with employees, suppliers and customers; second, sharing knowledge and power to frontline;

third, measuring and reporting only what is importance and necessary and finally linking performance measures to organizational strategy through critical success factors (CSF's). Bratton and Gold (2007) are also of the view that job performance indicators are useful tools to measure organizational and employee effectiveness. In order to achieve organizational objectives an organization has to develop KPI's which are essential to clearly identify the organization's values and its philosophy and also to clearly identify the client's needs and especially in relation to their needs. Arthur (1994) viewed that job performance indicators help an organization provide and develop quality services, bring organizational commitment, help to focus on client needs and meeting client needs, and provide adequate facilities for staff like training and administrative support (Ostroff and Bowen, 2000). Arthur (1994) suggested that the strategies that could be used to achieve these outcomes could include providing information to clients, interviews, group work and training.

2.8.1 Control over work

One of the important job performance indicators is control over work. According to Mathieu and Zajac (2000), control over the work environment is done internally or externally. The internal foci of control are the indicators of long term career success, such as promotion, training and development of reward systems etc. which helps an organization in providing quality of service and brings success by achieving its goals quickly. External job control indicators include creating job opportunities which will help an organization's employees and individuals in avoiding stress. It is necessary for the government and organizations to provide employment opportunities for individuals as this brings overall development for the organization as well as for the nation.

Paul (2010) discussed the fact that work can be managed better by reducing work stress. Once an employee controls his or her emotional intelligence and increases in self control and self confidence, it is easier for them to reduce work stress, thereby creating positive and constructive ways to overcome resistance. This enables the employee to gain satisfaction from his/her work and to achieve success. When an employee controls his/her emotional intelligence he/she can communicate with others easily and draw the attention

of people. Furthermore, he/she can overcome the differences that exist between management and employees and can discuss tensions and stress issues related to work with others which helps in improving work performance.

2.8.2 Accomplish the task quickly

It is important that the employee of an organization can accomplish the given target quickly. It enhances the overall performance of the company. According to Krull and MacKinnon (2001), a commitment to provide quality of service for customers within a timely manner creates more opportunities for company development. So employees who are committed to completing their tasks within the target time should be recognized by the management. They should be provided with progression and training to improve their quality of work. Meeting targets on time is an important indicator of job performance effectiveness and efficiency. An employee's willingness and commitment to accomplish a task within time also provides job satisfaction, avoids resistance to change in an organization and enhances the overall development of the company.

Dean and Linda (2010) stated that, for an employee to accomplish a given task on time, he/she should have control over his/her emotional intelligence. To make employees complete the given task on time management has to take care of certain things like motivation, training and career development aspects.

2.8.3 Improving the quality of work

According to Ali and Davies (2003), to overcome resistance to change and other effects of prejudice, many organizations train their employees according to their needs and also make them to participate in the affairs of the business. This brings changes and improves the quality of work undertaken by the employees. Organizations, in order to improve the quality of work, are applying different strategies such as encouraging promotions, recognizing the good work undertaken by employees, reward systems, introducing incentives, etc. Management and staff who wish to use the performance indicators wisely need to be firmly committed to the provision and development of quality services and see the mistakes made (including poor performance) as an opportunity for improving the

quality of work rather than instigate punishment; this brings positive changes in the perception of employees towards organizational development.

2.8.4 Improve job performance by eliminating errors

As per Whitener (2001), many companies bring in changes in their entire management system just to see improvement in the job performance of the employees. This includes technological changes, HR changes and environmental changes. In order to bring in technological changes organizations have to put effort into training their employees which, brings development in the job performance of an employee. HR changes include changes in the performance appraisal system which can be of benefit to both to the employee as well as the organization. It helps the organization to direct the employee towards organizational goals by letting employees know what is expected from them. A good appraisal system also includes knowing the employees' interests and motivating employees by bringing forward a positive attitude towards the organization. Organizations can bring changes in perception in employees by just pointing any short comings in encouraging manner and providing information on employment decisions, such as those regarding pay rises, promotions and discharges.

Onne, Catherine and Huang (2009) stated that, currently, industries focus on improving worker productivity (which is one of the important performance measures) by reducing wastage and utilizing maximum resources for effective output. Manufacturing industries improve the performance of jobs by reducing wastage, whereas trading and other service organizations focus on eliminating errors by providing quality services to its customers ensuring an improvement in the performance of the employee as well as the organization. In order to increase performance, taking into account the current working conditions is important as this enhances effective performance. Poor quality workplaces and emotional stress, factors such as environmental disturbances in the company and in the employees' surroundings can bring a decrease in employee concentration on the assigned tasks. Hence, all these factors need to be taken into consideration in trying to produce effective performance without any errors.

2.8.4 Enhance effectiveness on the job

According to Mathieu and Zajac (2000), organizational improvement and change enhances the effectiveness and performance of jobs. Mathieu and Zajac explained that the efficiency of the workplace is dependent on many attributes such individual perception, organizational structure, workplace climate etc. Aside from other factors training and development are important elements to which an organization must pay attention as they increase the job performance of each individual which, in turn, affects the goals of the organization. Training design is important for organizational outcomes. However, what happens before and after training is as important as what happens during the training.

According to Thomas and Daniel (2010), motivating employees by providing enough support, in understanding their roles' work, by providing individual training as per the job requirements, by providing the latest techniques and modern methods of understanding etc. all helps the employees to understand the future organizational structure and work accordingly. This is one of the performance indicators which enhance job effectiveness. Furthermore, performance indicators help organizations to build productive teams and managers and improve the performance of the organization as a whole. By understanding employee feelings and reducing conflict and misunderstanding between employees and management the job performance of employees as well as the organization is improved.

2.9. Chapter Summary

The literature review has presented an understanding of the various concepts and the types of resistance to technology change. Literature on change states that change happens slowly but brings vast changes in various aspects to both individuals and organizations. In an organization change is important as it brings improvements in business in terms of profits and performance. Initially businesses may face resistance to change but slowly the change will get adopted. Change can bring innovative ideas that help in improving overall business performance. Apart from this technology change is an initiator that allows people to do innovative things.

The literature also shows that it is also important to see that resistance to change should be expected when change is undertaken without involving employees. Currently organizations are undergoing tremendous change because of various reasons. Therefore, it is vital to identify the factors that drive resistance to change. For this firstly one needs to understand the present external and internal scenarios in order to know why people resist change, especially to technological changes.

From the literature it can be seen that initially resistance begins at individual level which then slowly moves to a group level and then finally reaches its peak at organizational level. To deal with this organizations have to initially take the necessary steps to observe and identify the expected resistance so as to help them in bringing out suitable strategies to overcome it. It is a common characteristic that most humans are reluctant to change and resist change. It can be that managers as well as employees know that they have to accept change but initially resist as they have personal professional issues as regards the change. Management has to build a positive environment when a change is introduced by creating good relationships with their employees.

The literature further identified that employees generally resist change but the reasons for this can be many. From the literature it is understood that identifying individual reasons is difficult but that identifying reasons in general is easier. Thus there are many reasons for resistance to change but in the author's view identifying reasons for resistance based on group and individual perceptions needs to be initially identified and thereafter change has to be implemented. The psychological thinking of employees, cultural aspects, local and organizational and social aspects, the behaviour of employees and, finally, demographic aspects such as age and gender show an impact on the resistance to change. Thus organizations have to focus on such issues as well and identify the best suitable strategies to overcome them.

Looking at the management perspective the literature shows that organizations also resist change even though they intend to implement it. Cost could be one of the big reasons. Also managers know that implementing change is difficult and they have a fear that they may lose power over the employees. All these aspects show that there is a need to study

the major factors of resistance to change and to identify suitable strategies to overcome them. It is clearly understood from the initial look at the literature that there is resistance to change, but how to overcome this resistance is a big task for management. As discussed in the earlier sections of this chapter organizations have to initially identify the reasons, factors and driving forces for resistance to change and then plan and formulate strategies that help them to overcome such issues.

Discussing about the indicators of job performance effectiveness literature identified that by implementing the strategies such as reward policies, effective communication, motivation helped employees to overcome resistance to technology change. Further these strategies helped employees to eliminating errors, accomplishing task quickly, having control over work and effectively managing their work performance. Thus these aspects were used in the framework so as to identify if the strategies opted for overcoming resistance led to improving job performance effectiveness.

Finally, the literature review suggests that if an organization successfully implements effective strategies this will not only help employees improve their performance but will also help management to overcome issues of resistance.

CHAPTER 3

RESEARCH METHODOLOGY

3 INTRODUCTION

This chapter describes the methodology employed in this research which aims to explore and understand resistance to technological change in public sector organisations within the context of the United Arab Emirates (UAE). To achieve this aim this research argues for, and adopts, a phenomenological approach based on the case study method rather than a positivist approach. This chapter provides justifications for the selection of the phenomenological approach and describes how the selected approach is to be implemented.

3.1 Research Philosophy

The two major philosophical approaches to research: the objective and subjective approaches are underpinned by a number of core assumptions regarding ontology (i.e., reality), epistemology (i.e., knowledge) and axiology (i.e., access to knowledge). The objectivism and subjectivism approaches have been named differently in the literature. For example, Easterby-Smith et al. (1991) refers to them as Positivism and Phenomenology, respectively.

3.1.1 Ontology

Research ontology is an aspect of research that is concerned with the researcher's view of the nature of *reality*. Objectivism is the ontological position which asserts that social entities exist in a reality external to the social actors. On the other hand, the subjectivism ontological stance proposes that one should understand the details of a situation in order to understand reality. Research ontology underpins and guides the selected research approach which, in turn, underpins and guides the methods followed in the research.

3.1.1 Epistemology and Axiology

Research epistemology refers to the assumptions made about what is possible for a researcher to know, and what constitutes acceptable knowledge. Axiology, on the other hand, describes the researcher's view on the roles of value and ethics in research methodology or, in other words, how to obtain this knowledge. A key area of epistemological debate in qualitative research is the degree of access or knowledge of a

participant's personal world that can be obtained by using a specific research method. Epistemology relates to research method and research methodology where it is possible to identify a hierarchy whereby epistemological assumptions shape methodological approaches which, in turn, inform the choice of method. In other words, the choice of a method of data analysis needs to be guided by the methodological position of a piece of research and its underlying epistemological assumptions. As Robinson (1998) suggested *“the prime determinant of the methodological approach is the nature of the problem under investigation.”*

The researcher's assumptions with respect to ontology, epistemology, and axiology represent their philosophical position which will have major implications on how the research should be carried and how data should be analyzed. In other words, the research philosophy determines the research methodology used to conduct, define and solve the identified research problems (Collis and Hussey, 2003).

3.3 Positivism

In the positivism approach, reality is considered both external and objective while knowledge is only considered to be significant if it is based on the observations of this external reality (Easterby-Smith et al., 2002). In addition, positivism distinguishes between facts and values and further suggests that scientific knowledge consists only of facts (Archer, 1988). Consequently, positivism holds that only scientific knowledge is valid, certain and accurate (Crotty, 1998). To achieve such a scientific knowledge, the positivism approach involves manipulation of theoretical propositions using the rules of hypothetico-deductive logic so that the theoretical propositions satisfy the four requirements of falsifiability, logical consistency, relative explanatory power, and survival (Easterby-Smith et al., 2002). Accordingly, hypothetic-deductive science proceeds through a process of hypothesising fundamental laws and then deducing what kinds of observations will demonstrate the truth or falsification of these hypotheses. Similarly, Robson (1993: 18-19) identified the following five sequential steps for a research based on the positivist tradition:

- Deducing a hypothesis (a testable proposition about the relationship between two or more events or concepts) from the theory.
- Expressing the hypothesis in operational terms indicating exactly how the variables are to be measured and the relationships between specific variables.
- Testing this operational hypothesis which may involve an experiment or some other form of empirical enquiry.
- Examining the specific outcome of the enquiry which either confirms the theory or indicates the need for its modification.
- If necessary, modifying the theory in the light of the findings. An attempt is then made to verify the revised theory by going back to the first step and repeating the whole cycle.

To summarize, the positivism approach assumes an observable social reality measured through objective measures and emphasizes highly structured methodology to facilitate replication. Thus, the end product of research using this approach can be law-like generalisations similar to those produced by scientists in the physical science domains.

3.4 Phenomenology

A phenomenological approach, also known as social constructionism or as the interpretivism approach, considers reality to be socially constructed and subjective in nature (Saunders et al., 2007). This approach aims to understand phenomena from the point of view of participants directly involved with the phenomenon under study (Cavaye, 1996) or from the actor's own frame of reference (Bogdan and Taylor, 1975). The focus of such approach, therefore, is an appreciation of different constructions and meanings that participants attach to their experiences (Easterby-Smith et al., 2002). The fact that such participants' interpretations are subjective suggests that these interpretations will be shaped by the participants' experience in their particular contexts. Consequently, instead of searching for external causes and fundamental laws that explain behaviour, this approach focuses on what people, individually and collectively, are thinking and feeling with the aim of trying to understand and explain why people have different experiences (Easterby-Smith et al., 2008). This stance, therefore, favours research forms that enable the distinctive character of such contexts to be studied

(Nandhakumar and Jones, 1997). Researchers working with the phenomenological approach are more likely to work with qualitative data, investigating small samples in-depth or over time, and to use multiple methods to establish different views of phenomena (Easterby-Smith et al, 2002). Table (1) summarizes the main features of positivism and phenomenology including the basic beliefs underpinning each approach, the role played by the researcher and the preferred methods of analysis associated with each approach.

Table 1: Key features of the positivist and phenomenological paradigms

(Source adapted from Easterby-Smith et al., 2002)

| | Positivist paradigm | Phenomenological paradigm |
|-----------------------------------|---|--|
| Basic beliefs: | <ul style="list-style-type: none"> • The world is external and objective • Observer is independent • Science is value free | <ul style="list-style-type: none"> • The world is socially constructed and subjective • Observer is part of what observed • Science is driven by human interest |
| Researcher should: | <ul style="list-style-type: none"> • Focus on facts • Look for causality and fundamental laws • Reduce phenomena to simplest elements • Formulate hypotheses and then test them | <ul style="list-style-type: none"> • Focus on meaning • Try to understand what is happening • Look at the totality of each situation • Develop ideas through induction from data |
| Preferred methods include: | <ul style="list-style-type: none"> • Operationalising concepts so that they can be measured • Taking large samples selected randomly | <ul style="list-style-type: none"> • Using multiple methods to establish different views of phenomena • Small samples selected carefully and investigated |

| | | |
|--|---|---|
| | <ul style="list-style-type: none"> • Experiments, surveys, case study, simulation, modelling | in-depth or over time <ul style="list-style-type: none"> • Case study, ethnography, action research |
|--|---|---|

Many researchers, e.g. Easterby-Smith et al. (2002) and Morgan (1988) have argued that the selection of a particular approach depends on the research objectives, research questions and the interests of the researcher. Given the explorative nature of this research in the specific context of the UAE and the aforementioned characteristics of the two approaches, the researcher proposes that the phenomenological approach, as opposed to the positivist paradigm, would be the appropriate approach to adopt in this research. Specifically for the following reasons:

- In terms of belief, the phenomenological paradigm embodies the belief that the world is socially constructed, subjective and that science is driven by human interests. These beliefs closely describe the context of this research in that resistance is a human reaction that is hard to identify and measure and is driven, among other reasons, by employees' self-interests. This match between the characteristics of the context of this research and the beliefs, which underpin the phenomenological paradigm makes it a suitable paradigm to be adopted by this research.
- In terms of research activities, the phenomenological paradigm proposes that the researcher should try to understand the situation by focusing on meaning and by looking at the totality of each situation. The explorative nature of this study, the lack of current literature on the specific context of the UAE, and the need for the researcher to identify common causes of resistance and to understand how to overcome them requires the researcher to follow these proposals of the phenomenological paradigm. For example, the researcher firstly needs to understand the nature of the UAE job market in terms of demographics, employment laws and culture, etc. In other words, the researcher needs to look at the totality of the situation. Furthermore, resistance is often present in different forms and can be hard to identify thus requiring the researcher to focus on the

meaning of employee actions and whether such actions can be classified as resistance. These examples highlight the need for this research to carry out the same activities that are proposed by the phenomenological paradigm and, therefore, support the suitability of this paradigm for this research.

- In terms of methods, the phenomenological paradigm prefers using multiple methods to establish different views of a phenomenon and encourages the researcher to select samples carefully and to investigate them in-depth or over time. The hidden nature of resistance, the fact that it can take many forms and shapes and employees' reluctance to talk about it requires the researcher to carefully select his/her samples such that employee actions are not misinterpreted as resistance when they are in reality a reaction to, for example, a poor information system. These characteristics of resistance also require the researcher to investigate cases in-depth so as to uncover the true motivations of employee actions and whether these actions represent a form of resistance. The suitability of these methods which are preferred by the phenomenological paradigm supports the adoption of this paradigm for this research.
- Figure (8) Illustration of the epistemological stance adopted by this diagram

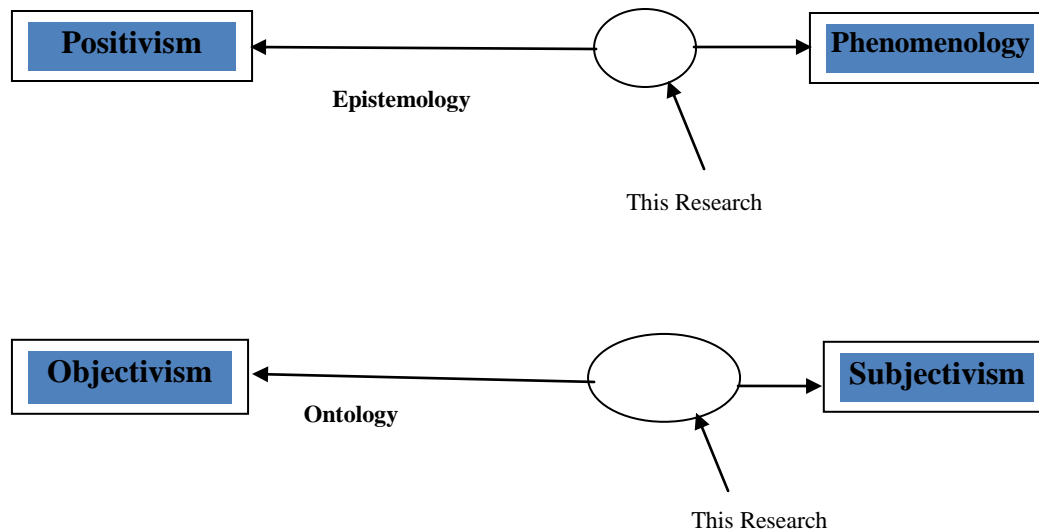


Figure 8: The epistemological and Ontological stance adopted by this research

3.5 Research Strategy

Different research strategies exist for primary data collection and analysis. Two famous strategies are the quantitative and qualitative research strategies. Quantitative research is usually large-scale research based on substantial samples. For example, if the population of a study is quite large then sample selection techniques will be used to select a random sample to apply the research method. The data obtained from a quantitative method is usually descriptive, providing data which illustrates frequencies (Collis and Hussey, 2003). Quantitative research is often employed in the positivist approach which seeks to deduce a hypothesis about specific phenomena then gathers data from the real world for subsequent statistical analysis that either confirm or reject the hypothesis.

Qualitative research is based on methods of data generation which are flexible and sensitive to the social context in which the data is produced (Collis and Hussey, 2003). The nature of reality is defined by the interaction of the researcher with the phenomenon under study. Qualitative research usually emphasizes words rather than quantification in the collection and analysis of data. Because it recognizes the importance of subjective research as well as the importance of information about the context of the phenomena, qualitative research is often employed in the phenomenological approach.

To summarize, using an inductive strategy, a researcher would first obtain and analyze the data which then contributes to forming the hypothesis. Conversely, in a deductive strategy, a researcher would first form a hypothesis and then collect and analyze the data to either confirm or reject the hypothesis (Glaser, 1998). An objective of this research is the development of a theoretical framework which will help to understand the causes of employee resistance in the context of the UAE and to guide proposals for overcoming such resistance. Therefore, following the phenomenological approach, this research adopts an inductive strategy based on theoretical sampling (Locke, 2001: 55). Theoretical sampling aims to ‘direct all data gathering efforts towards gathering information that will best support the development of the theoretical framework’ (Locke, 2001: 55). This research strategy is applied through sampling, surveys (questionnaires, semi-interviews) and case studies which, as described in sections 3.5.2.1 and 3.6.1, represent the most

suitable data collection methods for gathering all the required information needed for the development of such a theoretical framework.

3.6 Data Collection

Data for research is categorized into two forms: primary and secondary. Primary data is defined as data that is collected first hand by research using various means such as surveys, questionnaire, interviews, focus groups, observation and case-studies. The key point in primary data is that it is unique and has not been collected by someone else. Primary data may be qualitative in nature or quantitative.

Secondary data is defined as information that already exists and which is utilized and used by the researcher as a source of data. The researcher consults various sources such as journals, books, census data, government reports, newspaper articles, other researchers' studies and biographies to obtain information supporting his/her research work. With respect to data analysis, secondary data saves time that would otherwise be spent in data collection and is cheap and easy to collect while primary data is relatively expensive and difficult to acquire. However, secondary data can support primary data. Sometimes it is difficult to obtain primary data; in these cases getting information from secondary sources can be easier and possible to undertake.

Due to the nature of this research and in order to achieve the aim and objectives' the researcher has employed both types of data gathering techniques used in this study as primary sources. Collecting of the 'quantitative data' is aimed at identifying the resistance to the introduction of technology within UAE public companies and at identifying opportunities for improvement in job performance based on the developed framework. Following the outcome of the questionnaire survey analysis, the researcher then opted for self administrated interviews in order to elicit information in refine and evaluate the proposed framework using case studies which are discussed in more detail in section 3.7.

Yin (1989) identified six sources of evidence to support case studies, namely, documents, archived records, interviews, direct observation, participants' observation and physical

artefacts. The nature of the research topic itself (resistance) could mean that documents and archived records may not be very useful or relevant as an information source; resistance is often fuelled by a hidden agenda or personal interests and is rarely documented. Nevertheless, the company could have conducted its own review of IT project implementation which might have described useful information including the project timeline, the people involved, the project mile stones, the problems that have arisen, the deviations from the plan and other useful information. In addition, since the researcher is an outside observer, direct observation is excluded as a possible information source. Subsequently, the primary technique to be employed in the collection of primary data is in-depth interviews of both employees and managers.

Nandhakumar and Jones (1997) argued that interviews can enable a sensitive exploration of actors' interpretations at a small number of sites. However, due to the sensitivity of the topic of resistance and the understandable fear of adverse consequences such as dismissal, this researcher expects that employees might be reluctant to share information. Consequently, a major step in these interviews is the building of trust. According to Nandhakumar and Jones (1997), relationships between field researchers and their subjects rest on the basis of trust which, in turn, rests on the basis of liking.

3.6.1 Questionnaires' Design

Questionnaires are one of the instruments used in the collection of primary data from respondents and are designed for the statistical analysis of the responses (Mellenbergh, 2008). Questionnaires are a quick, simple and inexpensive way of collecting data from a number of respondents. Because questionnaires do not involve an interviewer or an observer, they tend to be free from interviewer bias. More importantly, the anonymity offered by questionnaires can help respondents to discuss issues which they might be reluctant to discuss in a one-to-one interview. Questionnaires need to be designed carefully if they are to provide reliable information. As a downside questionnaires can be considered inflexible because the information exchange is limited to the specified questions. Consequently, questionnaires can fail to identify the underlying causes of a problem and its potential solutions. Some of the problems a researcher may face with

using a questionnaire are low response rate, time delays, no control over who completes it, problems with incomplete questionnaires and not being possible to give assistance if required (Parajuli, 2004).

There are two types of questionnaire surveys, depending on how they are administered. The first type is the self-administrated questionnaire, whereby the researcher himself/herself distributes the questionnaire, explains the questionnaire then asks the respondents to answer all the questions and then collects the response later. The second type is the interview-administrated questionnaire, whereby the researcher asks the questions, records the answers of each respondent and then transcribes them afterwards. The researcher employed the two types of questionnaires. The self-administrated questionnaire was to elicit information about technological resistances factors. Based upon the results of self-administrated questionnaire, interviews were conducted to gain information about the effectiveness of the frame work.

The researcher used a self-administrated-questionnaire (see Appendix A), personally delivered it by hand to each respondent and full explanation of the questionnaires was provided and then collected the responses later.

The researcher opted for a self-administrated questionnaire in order to maximize the response and thus consequently increase data reliability. It also allows the researcher to interact with the respondents and gives more control to the researcher. Further, when collecting the questionnaires the researcher could check if some of the questionnaires are not completed or if the respondents needed some further clarifications with regard to some questions, as has been the case in this research. However, one of the main disadvantages of this type of method is that the respondents control the time of answering the questionnaires. The stance taken in this research is to allow between thirty –to-fifty minutes extra time for completing the questionnaires in order to ensure high quality feedback. A total of thirteen were given extra time to complete the questionnaires properly.

3.6.1.1 Piloting the Questionnaire Survey

After designing the questionnaire, prior to using them a pilot study was made by the researcher. The questionnaire was piloted in two stages. Firstly, through personal contact with the respondents by undertaking two in-depth discussions with five managers in different public companies in the UAE. These managers provided extensive feedback on the questionnaire. Secondly, the questionnaire was piloted with six PhD students in Salford and Manchester Universities in UK. The purpose of the pilot study was to ensure that there was a sufficient variation in response, that the questions provided were understood; that no questions were unnecessary; that the length of the questionnaire was not off-putting; that there was clarity and simplicity of language, and that the scale items and evidence of acquiescence as well as all the instructions were clear. The questionnaire included general demographic questions relating to age, gender, experience, income and department. Feedback given by the participants helped the researcher to refine the questionnaire, thus showing the importance of this pilot study.

3.6.1.2 Measuring and Scaling

The survey questionnaire was designed to measure the factors that affect employee resistance to technology change in UAE public sector companies. The survey responses were measured based on a five point scale (Likert scale) where the responses given had options ranging from strongly disagree to strongly agree (Strongly disagree = 1, Don't agree = 2, Neutral = 3, Agree = 4, and Strongly agree = 5). This type of scale helps in understanding the opinions and views of the respondents. Using such a type of scale helps the researcher to measure the level of employee resistance towards technology change.

3.6.1.3 Survey Questionnaire Sample

The researcher initially conducted a pilot study, as discussed above and questionnaire was handed over only to those who were interested. The survey sample included a total of 8 questions relating to demographics (age, gender), personal information (education, job, income, experience). The questionnaire also contained a further 10 questions relating to

the drivers for technology change, reasons for employee resistance to technology change, reasons for management resistance to technology change, and the necessary strategies to mitigate the resistance to technology change. Before distributing the survey questionnaire to the employees, the researcher explained the purpose of the survey to the participants and reiterated important instructions for completing the questionnaire. A total of 200 employees from four different companies were selected. Fifty employees from each company participated in the survey. These companies included Al Ain Municipality, Tawam Hospital, the Social Affairs Department and Al Ain Distribution Company. The questionnaire was distributed to an identified sample of 200 people, of which 173 responded to the survey. Of the received 173 responses only 160 were duly filled and completed. These responses were only considered for further research analysis that gave a 92.5 % response, which constitutes a high response rate. The thirty respondents were omitted because of lack of completeness to most of the questions. Having high response rate helps the researcher to avoid bias in results and brings transparency in the results.

3.6.2 Qualitative Data Techniques

The two most commonly used interview types are semi-structured and unstructured interviews (Bryman, 2001). In an unstructured interview, a single or very few questions are asked and the interviewee is allowed to respond freely to these questions with the interviewer simply responding to points that seem worthy of being followed up. Semi-structured interviews, on the other hand, involve a list of questions or fairly specific topics to be covered. However, questions may not necessarily follow the same order outlined in the schedule. A third type of interviews is the highly structured interview where the objective is to obtain specific responses to carefully devised questions.

3.6.2.1 Self-administrated Semi-Structured interview

The type of interview adopted in this research was the semi-structured interview which is especially relevant because of the need to build trust so as to encourage the interviewee to give their honest view about the topic under review; highly structured interviews do not provide the needed flexibility. A list of topics was used to guide the interview allowing

the interviewee to respond freely. Interesting points from the responses were then scrutinized further.

The goal here was not to quantify the interviewee's experience but rather to gain an insight into their values, beliefs, knowledge, skills, feelings and their perceptions about the organisation's IT systems, and the organization as a whole. Note that because the goals and interests of managers were likely to be different from those of employees, these two types of stakeholders had to be asked different questions and thus there was a need for different interview guides. In both cases the questions and the interview guides were refined throughout the field study. Interviews were conducted mainly in the Arabic language because it is spoken by all UAE citizens. Furthermore, a large proportion of the participants lacked adequate knowledge of the English language. Given the sensitivity of the topic and the likelihood that employees might wish to keep their opinions confidential, the researcher opted to record all the information to comfort the respondents and to elicit more information. Furthermore, all interviews were conducted in Arabic. All these interviews were translated into English. For the purpose of the data analysis, this research proposes the use of 'within case and across case analyses' recommended by Eisenhardt (1989).

Researcher adopted the semi-structured interview technique as it was found appropriate to collect the responses of the interviewees directly. This method also helped the researcher to undertake short discussions in the areas of the research which had not been considered before. Semi-structured interviews were conducted with 3 middle level managers in UAE public sector companies. The reason for selecting only 3 HR is that there is the justification for targeting HR managers is their close involvement with all employees in terms of performance monitoring, and the fact that HR department is where job roles and responsibilities as well as salaries and grades are defined .Furthermore, HR department is often a primary contact for most issues and concerns raised by employees.

The semi-structured interview questions were based on the outcome of the self-administrated questionnaire. They were developed in English first, then translated into

Arabic and piloted in Arabic. After the pilot study, changes were made in the Arabic version questionnaires and accordingly in the English version.

3.6.2.2 Semi-structured Interviews Sample

During the first phase of the research, the researcher approached a number of managers in different public sector companies (mentioned in section 3.5.1.1) to find out if they were willing to participate in the interviews. Three middle level managers from Human Resources and Information Technology departments showed their willingness to participate in the interviews and these were selected.

The managers were approached based on their education, age, experience, level of decision-making power, responsibilities and position. In the second stage appointments were made to undertake the interviews. Prior to conducting the interviews, the researcher obtained authorization from the university and from the selected managers for conducting the interviews. The third and final stage of the research involved the actual interviews and during the interviews the responses were written down (with the managers' permission) in order to use them during data analysis.

3.6.3 Population and Sampling

3.6.3.1 Population

In a research study, 'population' means a group of people. The population in this research were all employees in UAE public sector companies. Researchers are hardly able to study every member of a population. Instead, they usually study some members of the population to represent a sample or a subset of a population. Researchers then generalize their findings about the sample to the population.

5.6.3.2 Sampling

A sample is a miniature version or a subset of a big group called a population. A sample is obtained by collecting information from only some members of the population. Sampling is a basic approach or method chosen in formulating data when a researcher

looks at the views of a large group or a big sample and can use questionnaires to generate statistical data. A formal 'sampling' could be conducted to make sure all sectors of the population are covered and see that bias is reduced if not avoided. In this research, the employees selected for interviews were all from public sector companies and were selected at random (random sampling). According to Runyon and Haber (1976), random sampling is a procedure used by researchers in which all samples of a particular size have an equal chance of being chosen for an observation, experiment, etc. This increase the chances that the average figure calculated at the end are near the 'real' average.

3.7 Case Study Method

This research applies the case study method for data collection and analysis. This section provides an overview of the case study method, its advantages and disadvantages, and describes the rationale for its adoption in this research.

Yin (1989:23) defined a case study as “*an empirical inquiry that: investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used*”. Another similar definition by Hartley (1994: 208-209) described case study based research as one that “*consists of detailed investigation, often with data collected over a period of time, of one or more organizations, or groups within organizations with a view to providing an analysis of the context and processes in the phenomenon under study*”. Both of these definitions suggest the suitability of the case study method as an investigative framework for understanding a complex phenomenon within its context.

Locke (2001) identified three types of case studies: the intrinsic case study, the instrumental case and collective cases. An intrinsic case study focuses on the uniqueness of a particular case i.e., the researcher is interested simply in understanding the case itself because of its peculiarity and uniqueness. An instrumental case study, on the other hand, focuses on a particular case because of its potential to provide insight into a substantive issue or to advance a theory. Finally, a collective case is when the instrumental case

extends to more than one case. For example, according to Yin (1989), case studies can involve either single or multiple cases and numerous levels of analysis. This flexibility of the case study method is also demonstrated by Eisenhardt (1989) who argued that a case study method can be used to accomplish various aims including the provisioning of description as well as testing and generating theory. However, according to Yin (1989:21), the case study method provides little basis for scientific generalization. Yin argued that the case study method does not represent a 'sample' and, therefore, should be regarded similar to 'experiments'. Furthermore, in the case study method, a researcher aims to expand and generalize theories i.e., 'analytic generalization' and not to enumerate frequencies i.e., 'statistical generalization' (Yin, 1989). Despite this shortcoming in supporting generalizations, the case study method is widely used in the field of management and organizational studies.

3.7.1 Rationale for Adopting the Case Study Method

There are three major reasons for adopting the case study method in this research. Firstly, the research topic of employee resistance to technological change is poorly researched in the context of the UAE. In this respect, this research is the first of its kind to explore employee resistance to technological change in that specific context. Subsequently, this study is basically an exploratory investigation. The intention of this research is to describe the nature, causes, and level of resistance to technological change in the UAE (specifically its public sector) and to provide recommendations on how to overcome such resistance. Yin (1989) argued that when the research objectives revolve around 'how', 'what' and 'why' with regard to a contemporary set of events over which the researcher has little or no control, then the case study method will be the most appropriate investigative framework. Similarly, Hartley (1994) argued that case studies are tailor-made for exploring new as well as existing processes and behaviours which are little understood.

Secondly, to understand a phenomenon such as employee resistance to technological change and its causes, which has not been previously researched in the specific context of the UAE, relevant information can only be obtained from the employees themselves. This

is because resistance is a human behaviour that is often driven by self interest and there is a need for the researcher to uncover the true motivations for employee actions which can only be obtained from the employees themselves. In addition, resistance is seldom documented and can be hard to identify because it can take different forms and shapes. Gomez and Rosen 2001) stated that “*to understand social process one must get inside the world of those generating it*”. The simplest way to achieve this is to get access to the actors themselves and to elicit their interpretations directly (Johnson, 1987; Nandhakumar and Jones, 1997) which can only be satisfactorily achieved through in-depth interviewing of those actors. Therefore, this research considers case studies the most appropriate strategy for understanding the nature and causes of employee resistance to technological change.

Thirdly, resistance is inherently contextual whereby the introduction of the same technology might cause resistance in certain contexts but not others. Conversely, the same employee might resist technology in certain contexts but not others. This research argues that, in order to obtain a sound understanding of employee resistance to technological change, both inner organizational and outer economical, political and socio-cultural contexts should be considered. Hartley (1994) cogently argued that case studies are useful where it is important to understand social processes in their organisational and environmental contexts. Hence, the case study method is considered a suitable framework that enables the inclusion of contexts in this research.

3.7.2 Selection of Companies

UAE has witnessed fast development in terms of technology adoption due to rapid development of information and communication technology (ICT). This in turn has forced the government organizations to adapt to the change technology (Al-Khouri, 2102). Public sector companies selected for this study are from the region of Al Ain. Al Ain is a small region of Abu Dhabi emirate which has also introduced new technology in all its public sector companies for faster and better performance and services. Two criteria guided the selection of companies for conducting the in-depth investigation, which were:

- Suitability and relevance of the company for observing resistance to technological change. The selected company must have recently introduced a major Information Technology system, whether successfully implemented or otherwise. Recent projects had to be selected in order to reduce, as much as possible, the errors of distortion and memory failure of the actors during the data collection phase (Mintzberg et al., 1976; Papadakis et al., 1998)
- The quality of access given to the researcher. The researcher must be given unrestricted access to conduct interviews with both employees and senior management.

Hartley (1994) described two useful means for gaining access: introduction either through a third party or through broad-ranging interviews with senior managers in potential organizations. The researcher has senior contacts in the ‘Al Ain Distribution Company’ (ADDC), which is a public sector company overseen by ‘Al Ain Water and Electricity Authority’ (ADWEA). Furthermore, ADWEA has recently introduced a number of information systems such as an enterprise Geographical Information System (GIS) which enables the organization to perform its operations and update its activities within an effective and efficient digital utility environment. The company has also recently established a Digital Systems department with the purpose of facilitating the digital business transformation. Consequently, the ADDC meets the aforementioned selection criteria and therefore has been chosen as the main case study for this research. Other organizations include:

- Al Ain Municipality.
- Tawam Hospital.
- The Social Affairs Department.

It is important to note that the intention of this research is not to test hypotheses or make a generalisation in a statistical sense but rather to understand the nature and causes of employee resistance to technological change within its context and to make a theoretical generalisation. Considering this goal, the number of case studies is not of crucial importance. According to Gummesson (1991), it is not necessary to study a large number of cases in order to understand a phenomenon in depth.

3.8 Data Analysis

Statistics unlike many other fields is interdisciplinary. The statistical tools and methodologies available have applications in virtually every discipline. In this study the collected data is analyzed using Statistical Package for the Social Sciences SPSS version 15 (SPSS). The SPSS is a computer package used for statistical analysis. Among the statistics included in the base software which are used in this study are:

- The Respondents' Demographic Features.
- Reliability Statistics.
- Descriptive Statistics.
- Analysis of Variance (ANOVA).

This research's objective is the development a theoretical framework that helps to understand the nature and causes of employee resistance to technological change in the context of UAE public companies and to guide the identification of possible solutions. The research utilizes current literature focusing on the issues of employee resistance to technology change, its impact on employee job performance, and other managerial implications. The aim is to develop an understanding of the key factors (Honey, 1988) that cause employees' resistance to change in organizations and the effects on employee job performance. Following the identification of a gap in the knowledge, this research then uses a combination of methods to bridge this gap in the knowledge. The inductive approach is used to illustrate and analyse the reasons behind employees' resistance to change using semi-structured interviews with managers and employees. This approach is reused to evaluate employees' job performance in an environment where changes are not welcomed. In the end, a combined approach will allow the researcher to paint an overall picture of the investigation and to come up with a set of proposed solutions. Finally, conclusions and recommendations will provide fresh insights and ideas for applying the findings of the research in practice.

3.9 Phases of the Research

The Figure below illustrates the different phases of this research and the various sources of information necessary for the case study. In the first phase, the researcher conducted a pilot study in some of the public sector companies in Abu Dhabi. The findings of this pilot study were then used to influence and define the research problem. A literature review was then carried whose findings served as an input into the development of a framework used for guiding the subsequent phases. The developed framework was then refined using information collected through interviews and questionnaires. The case study was then evaluated, the findings analysed, and recommendations proposed.

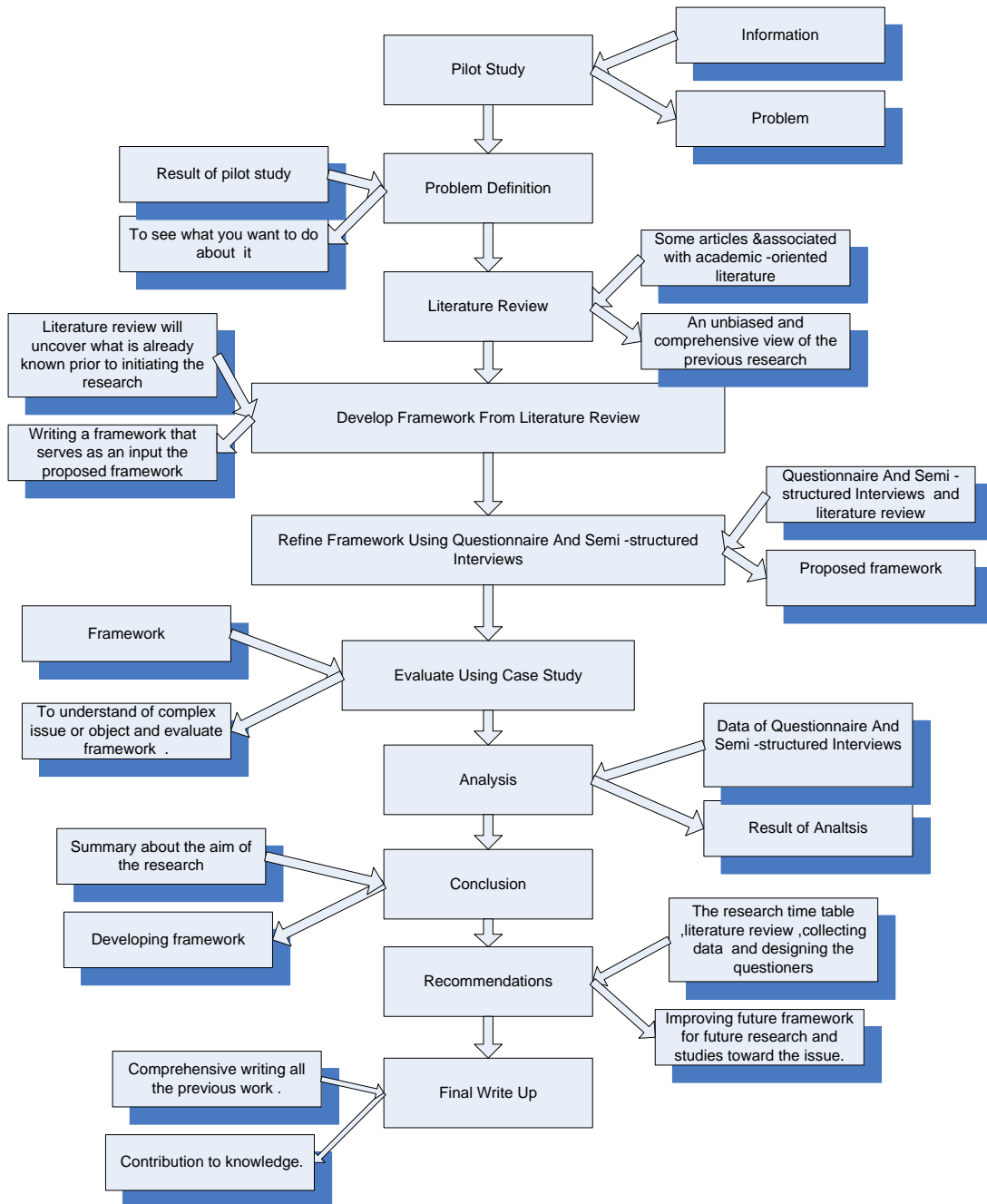


Figure 9: Phases of the Research

3.9.1 Research Process

The research process has been divided into two parts, firstly developing a conceptual framework and, secondly, designing the actual research study that includes the area of study, location, sample, organization, data collection and analysis. In this process as part of the first steps taken the researcher has developed a phases of research which clearly illustrates how the research was carried out. This research process has been developed based on the adopted research method, approach, strategy, data collection and method of analysis. The research first started by clearly explaining the research aim objectives and research questions. The research was interested in studying the reasons for resistance to technology change and the major factors that provide an impact on resistance. From the literature review the researcher has identified many factors, such as management, behavioural and demographic factors etc., which lead to resistance to technology change in UAE public sector companies. The researcher conducted a pilot study before collecting the data. The research identified a list of factors that were seen as the reasons for resistance to technology change and using these factors the researcher developed a questionnaire which was distributed to some of the employees in the selected organizations so as to gain appropriate data. After receiving the information from the participants the researcher revised the list of factors and started designing further data collection stages. The research was designed in three data collection stages that helped in answering the research questions and achieved the research objectives. The three stages are discussed below.

3.9.1.1 Stage 1

This stage was planned to identify various factors in order to develop a framework that helps to measure the impact of each factor on the resistance to technology change. Two types of questionnaires were designed for this research. Firstly, the researcher developed a survey questionnaire which was distributed to employees in selected companies. The survey questionnaire was designed to measure the factors that affect employee resistance to technology change in UAE public sector companies. The survey responses were measured based on a five point scale (Likert scale) where the respondents had options

ranging from strongly disagree to strongly agree. Analysis of the results was undertaken using SPSS software. Furthermore, to identify the actual (after the survey) factors affecting the resistance to technology change the researcher planned to interview the middle managers who were better able to understand the impact of such factors. The outputs from this stage helped the researcher to refine the framework.

3.9.1.2 Stage 2

In this stage the researcher aimed at further refining the framework. To do this the researcher developed a sample interview questionnaire for middle managers. At this stage the researcher designed an interview questionnaire that included a list of factors that were found to be some of the reasons for resistance to technology change such as management factors, demographic factors, behaviour factors, cultural factors, social factors and so on. The questionnaire was distributed to three middle managers in UAE public sector organizations. This helped the researcher to identify the errors in the previous framework and helped to develop a new framework with the newly collected data. Several modifications were made in this stage in order to refine the framework.

3.9.1.3 Stage 3

In the final stage the collected data was used to validate the refined framework. Thus the researcher validated the refined framework using semi-structured interviews which were conducted in an organization with middle managers. The final validated framework was developed with some modifications and that, then, was the end of the data collection process. Next, after collecting the data, the researcher analyzed the collected data and discussed the data analysis methods. Once the data were analyzed final findings and discussions were presented providing recommendations and conclusions.

3.10 Chapter Summary

This chapter discusses and justifies the research methods, approaches, strategy and validation of the techniques that were used that helped the researcher to answer the research questions and thus to achieve the research objectives. The research method is

characterized by three concepts: epistemology, methods and methodology. Epistemology helped the qualitative research which could be said to be the knowledge of the participants' personal world. This research opted for both objectivism and subjectivism wherein objectivism asserts that social entities exist in a reality external to the social actors. On the other hand, the subjectivism ontological stance proposes that one should understand the details of a situation in order to understand reality. The two main research approaches used in the research were positivism and phenomenology. Positivism distinguishes between facts and values which are identified through five sequential steps, deducing a hypothesis, expressing the hypothesis, testing this operational hypothesis, examining the specific outcome and modifying the theory in the light of the findings. The phenomenological approach helped to understand phenomena from the point of view of participants directly involved with the phenomena under study. This stance, therefore, favoured the research forms that enable the distinctive character of such contexts to be studied.

The research strategy is applied through experiments including sampling, surveys (questionnaires, semi-interviews) and case studies in order to evaluate the framework. By following the phenomenological approach, this research applied the case study method for data collection and analysis. The case study method helped the researcher to accomplish the aims including the provisioning of description as well as testing and generating theory. The case study method was chosen as the research topic of employee resistance to technological change is poorly researched in the context of UAE. The intention of this research was to describe the nature, causes and level of resistance to technological change in the UAE which was accomplished through the case study approach. The researcher designed and used a quantitative data collection method that assisted in collecting information from different employees from different locations and positions who had had different experiences. This helped the researcher to develop an understanding as to the various reasons why employees resist technology change. Data collection and analysis was undertaken using SPSS software. In the initial stages a framework was developed using an extensive literature review and drawing on theoretical

aspects. Next, using semi-structured interviews, the initial framework was revised and these interview results helped the researcher to develop a refined framework.

CHAPTER 4

DATA ANALYSIS STAGE 1 and 2

4. INTRODUCTION

This chapter presents an analysis of the data obtained from the questionnaires and the semi-structured interviews undertaken in stages 1 and 2. In stage 1 a framework was developed from the literature review to identify the resistance factors that affect employees in the UAE public sector and this was used in the questionnaire and the interview survey. This chapter starts with an analysis based on the results from the interviews and the questionnaires. Analysis is undertaken based on the respondents' demographic features, Tests of Reliability and Validity, description of statistical and ANOVA analysis methods using SPSS. The descriptive statistical method was used for each question presented in the questionnaire including for the personal information of the participants and the reasons for resistance. The results of the analysis are presented in tables and pie charts. The test of reliability and validity and the ANOVA analysis is also presented.

The aim of the ANOVA analysis was to identify the possible relationship between reasons of resistance and the factors that affect resistance. In addition, the ANOVA analysis helped the researcher to gather a wide range of information that could support the gathered data and to understand the various reasons for resistance and the factors affecting resistance. In stage 2 the researcher was able to develop a framework after the reasons and the factors affecting resistance were identified. After that, the framework was tested on three managers and semi-structured interviews were conducted. Based on the outcome of the semi-structured interview analysis the framework was refined.

4.1 Framework Development Analysis

In this stage the researcher distributed 200 questionnaires to participants in four organizations in the UAE public sector (referred to as A, B, C and D). 160 questionnaires were returned. The questionnaire aimed at identifying the major reasons and factors affecting employee resistance to technology change. Moreover, the researcher conducted interviews with the respondents after collecting the questionnaires to understand how these factors affect employees in the companies.

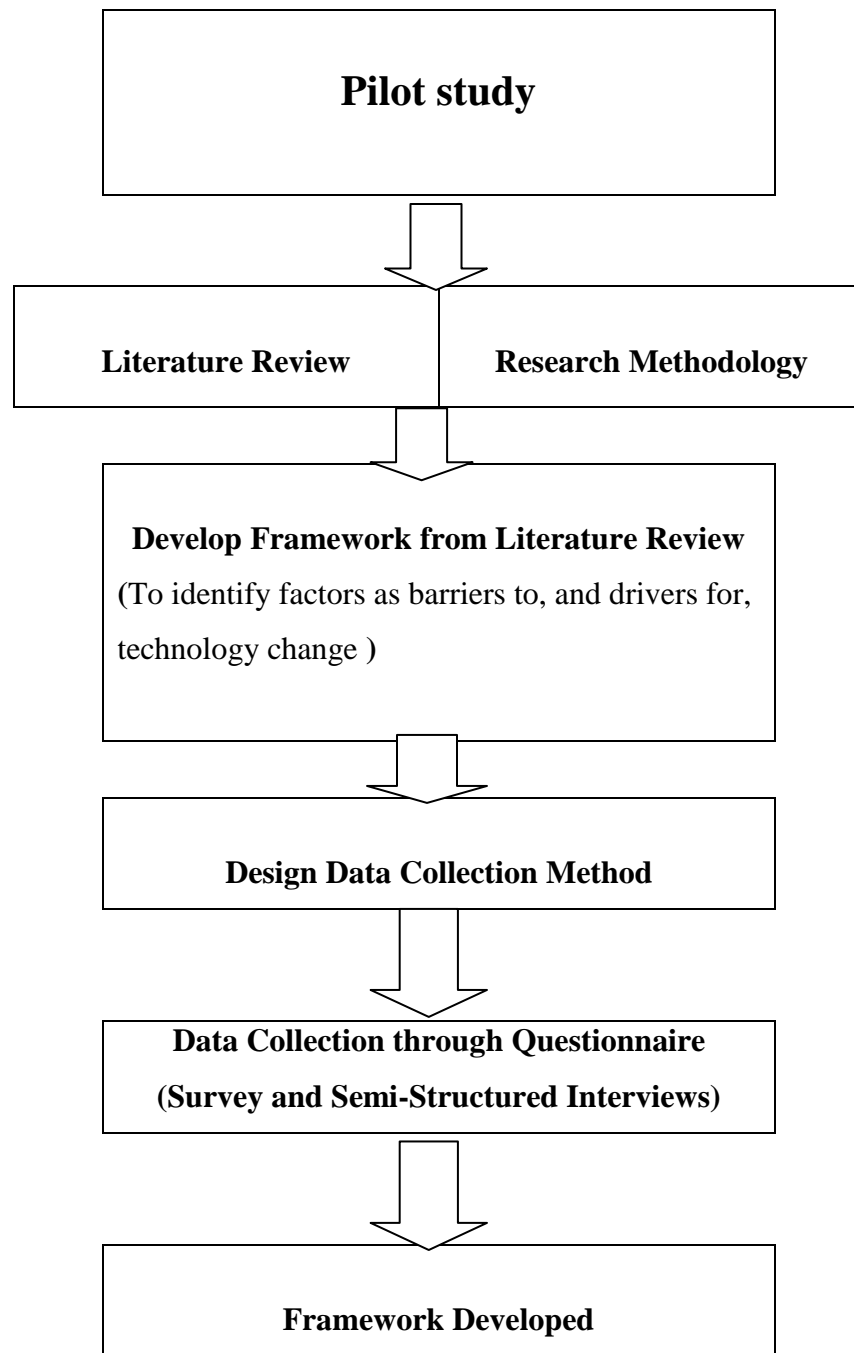


Figure 10: Framework Development Phase

4.2 Self Administered Questionnaire Results

The self-administered questionnaire included questions relating to personal information on the participants such as age, gender, income level etc and then there were additionally a total of 10 major questions with sub-divided questions relating to drivers of technology change, reasons for employee resistance to technology change, reasons for management resistance to technology change, and the strategies necessary to mitigate resistance to technology change. In addition, the researcher attached a covering letter to give participants an indication of the research problem and the reason behind undertaking this questionnaire. The covering letter also included information for participants on some ethical issues concerning protecting participants' identity such as keeping their identity confidential, destroying their submitted hard copy and emphasising that it was their choice to participate in the survey or not (see Appendix A).

After obtaining the acceptance of the participants to participate the researcher distributed the questionnaires by hand to the participants. Furthermore, the researcher checked with the participants concerning the clarity of the questions included in the questionnaire. Next the researcher approached each company in order to arrange an appointment with the Head of the section of Human Relation (HR) in each company and discussed with him the need for the research additionally he arranged appointments for semi-structured interviews with higher and middle managers.

The researcher was able to gather a total of 173 filled-in questionnaires, of which 160 were satisfactorily filled and were considered for analysis. From this analysis the researcher was able to identify the drivers for technology change, the reasons for employee resistance to technology change, the reasons for management resistance to technology change, and the necessary strategies required to mitigate the resistance to technology change. However, in order to gain a deeper understanding of the issues there was a need for further investigation. For this the researcher approached three higher and middle managers to conduct semi- structured interviews with them. Details of the interviews are discussed later in this chapter. The SPSS programme was used to analyze the gathered data for effectiveness and efficiency.

4.2.1 The Respondents' Demographic Features

This section discusses the study findings with regard to the demographic features and the characteristics of the respondents in the four surveyed public sector companies. The researcher was able to collect and use 160 questionnaires from the 200 given out in total.

4.2.1.1 Respondents' Demographic Variables

A- According to work sector:

Table 2: Distribution of the sample according to work sector

| N | Sector | Frequency | Percentage |
|--------------|---------------|------------------|-------------------|
| 1 | Case A | 46 | 28.8 |
| 2 | Case B | 48 | 30.0 |
| 3 | Case C | 34 | 21.3 |
| 4 | Case D | 32 | 20.0 |
| Total | | 160 | 100.0 |

- A: Al Ain Municipality.
- B: Al Ain Distribution Company.
- C: Tawam Hospital.
- D: The Social Affairs Department

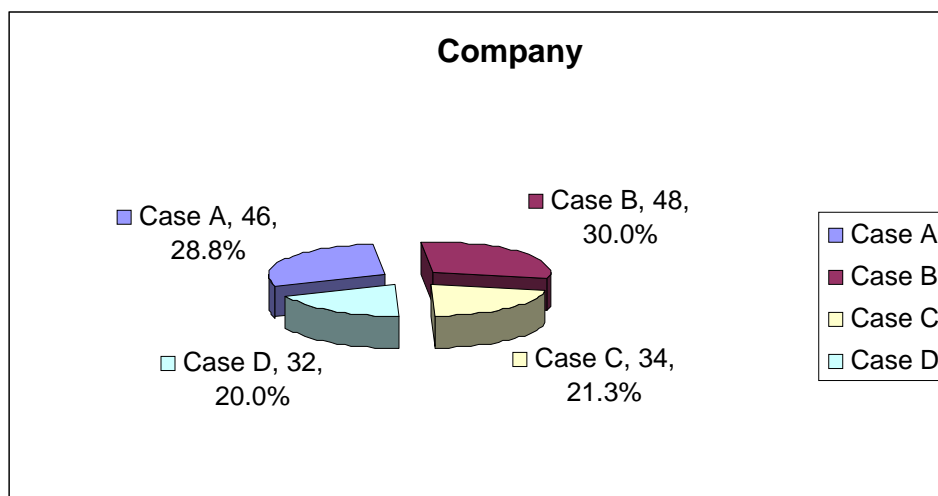


Figure 11: Distribution of the sample according to work sector

According to Table (2) and Figure (11), it can be concluded that participants from company A represents company B represents 30%, company C represents 21.3% and, finally, company D represents 20% of the total sample units. This shows that the surveyed samples were fairly evenly distributed among all participating companies.

B- Gender:

Table 3: Distribution of the sample according to gender

| Gender | Frequency | Percentage |
|--------------|------------|--------------|
| Male | 82 | 51.3 |
| Female | 78 | 48.8 |
| Total | 160 | 100.0 |

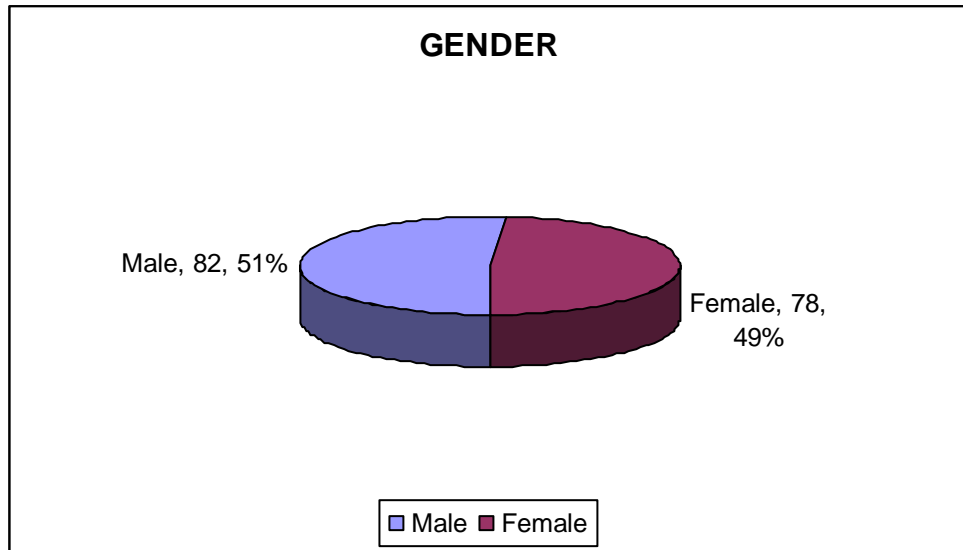


Figure 12: Distribution of the sample according to gender

Table (3) and Figure (12) above show that females represented 48.8% of the total sample population while males represented 51.3%. This is an indication that the UAE public industry sector is no longer a male dominated sector and women are undertaking a significant role in the development of the country. From the gender perspective, the results provide comparative aspects and an important aspect in analyzing data.

C- Age:

Table 4: Distribution of the sample members according to age

| Age | Frequency | Percentage |
|--------------|------------|--------------|
| Less than 25 | 19 | 11.9 |
| 25-30 | 57 | 35.6 |
| 30-35 | 50 | 31.3 |
| 35-40 | 31 | 19.4 |
| Above 40 | 3 | 1.9 |
| Total | 160 | 100.0 |

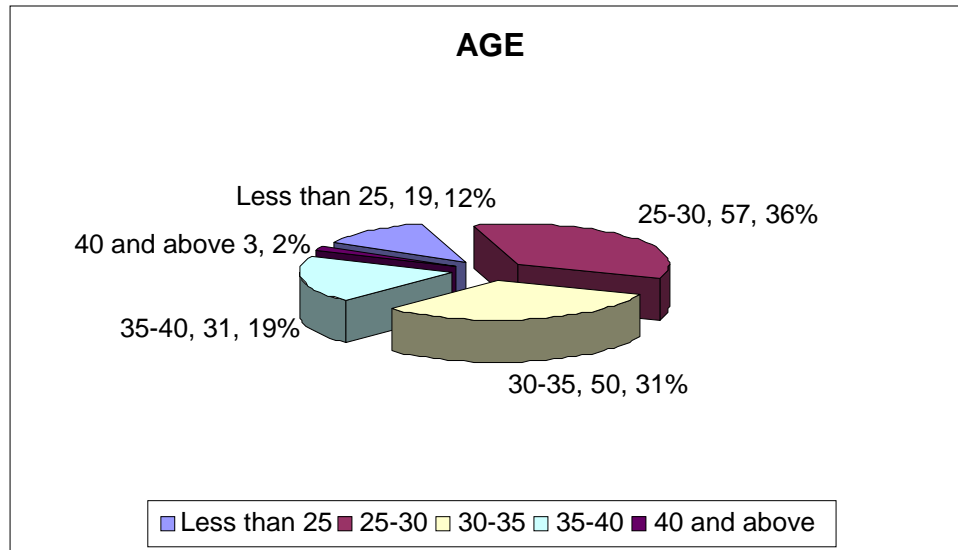


Figure 13: Distribution of the sample members according to age

Table (4) and Figure (13) illustrates the distribution of the sample population according to participants' ages. As shown, 11.9% of participants were aged 25 years or less, 35.6% were in the age group 25-30, 31.3% in the age group 30-35 and 19.4% in the age group 35-40. Only 2% of the participants were over 40 years old forming the smallest group. This gives a fairly good distribution of participants across various age groups.

D- Education:

Table 5: Distribution of the sample members according to education

| Education | Frequency | Percentage |
|-----------------------------|------------|--------------|
| Diploma | 40 | 25.0 |
| Higher diploma | 15 | 9.4 |
| University degree | 86 | 53.8 |
| Higher degree (Masters/PhD) | 19 | 11.9 |
| Total | 160 | 100.0 |

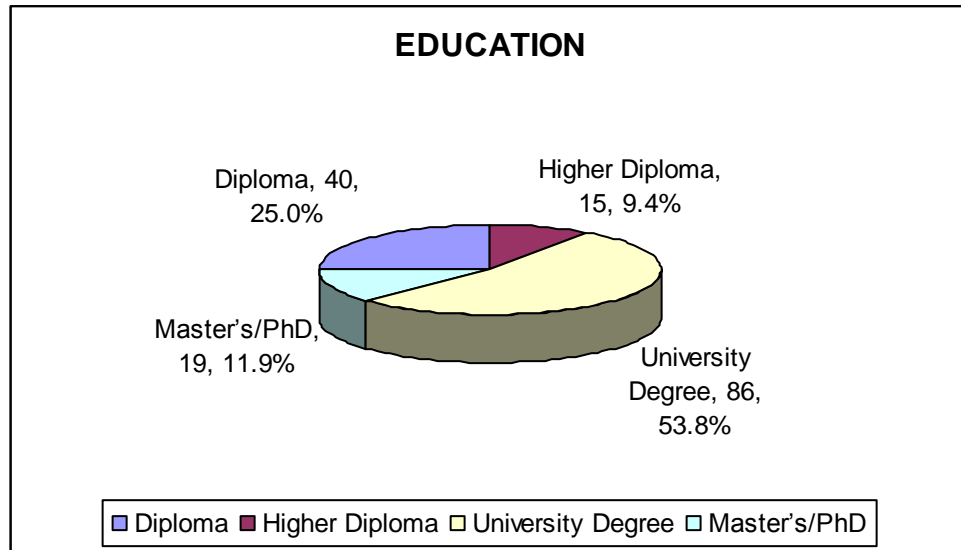


Figure 14: Distribution of the sample members according to education

Table (5) and Figure (14) details the academic qualifications obtained by the participants. The results show that the participants generally have some type of academic qualifications. The majority of the participants (53.8%) have a bachelor's degree followed by 25% with a diploma. Nearly 12% have Masters/PhD degree. A small proportion of the participants (9.4%) have a higher diploma. Educational level provided the researcher with significant information which shows the standard of education in the public industry companies in the UAE.

E- Experience:

Table 6: Distribution of the sample members according to work experience

| Work experience | Frequency | Percentage |
|------------------------------------|------------|--------------|
| Less than 1 year | 20 | 12.5 |
| From 1 year to less than 5 years | 58 | 36.3 |
| From 5 years to less than 10 years | 41 | 25.6 |
| More than 10 years | 41 | 25.6 |
| Total | 160 | 100.0 |

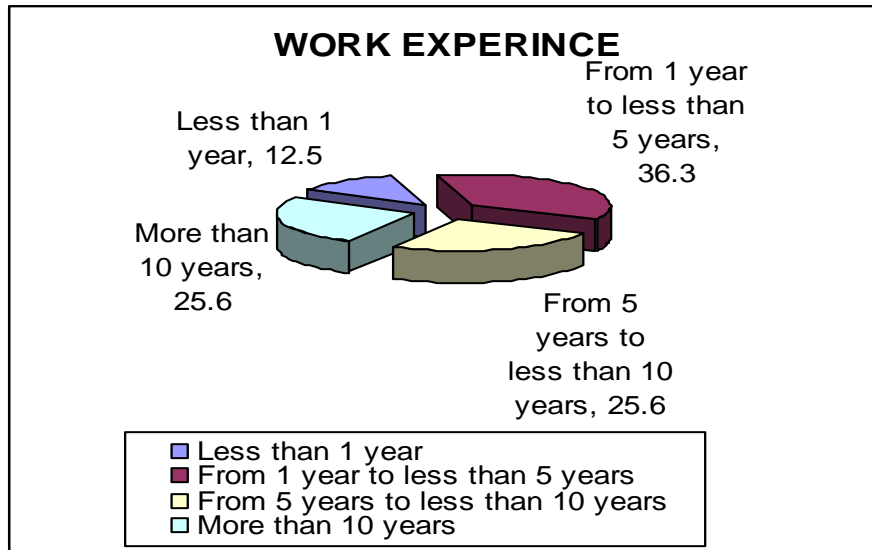


Figure 15: Distribution of the sample members according to work experience

Table (6) and Figure (15) above show the distribution of the participants according to length of work experience. The majority of the participants (36.3%) had between one to less than five years of experience. The next two largest groups had equally the same percentage (25.6%) covering between five years to less than ten years, and more than ten years of experience. The smallest group (12.5%) constituted those participants with less than one year of experience. The results reveal that the overwhelming majority of the respondents have had many years of experience. This is significant in terms of the participants' perceptions about the introduction of new technology as well as their perceptions about performance in companies and departments as affected by the introduction of new technology.

F- Position:

Table 7: Distribution of the sample according to position

| N | Position | Frequency | Percentage |
|---|-------------|-----------|------------|
| 1 | Manager | 30 | 17.9 |
| 2 | Accountants | 34 | 21.7 |
| 3 | IT | 25 | 15.6 |
| 4 | Technicians | 20 | 12.9 |
| 5 | Engineer | 32 | 20 |
| 6 | Others | 19 | 11.9 |

| | | |
|--------------|------------|--------------|
| Total | 160 | 100.0 |
|--------------|------------|--------------|

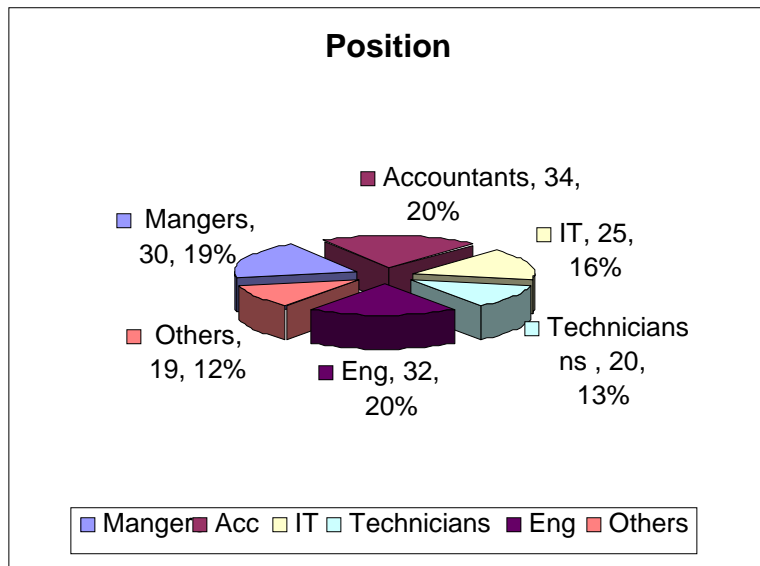


Figure 16: Distribution of the sample according to position

According to Table (7) and Figure (16), it can be concluded that manager's positions represent 17.9% of the total while accountants represent 21.7%, and IT represents 15.6%. Technicians represent 12.9%, furthermore Engineering represents 20% and, finally, other positions represent 11.9% of the total sample units.

4.2.2 Tests of Reliability and Validity

4.2.1 Reliability

Reliability is the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials without the agreement of independent observers able to replicate research procedures, or the ability to use research tools and procedures that field consistent measurements.

4.2.2 Validity

Validity refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure. While reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with

the study's success at measuring the validity. Validity is one of the major concerns in research. Validity is the quality of a research that makes it trustworthy. Scientific validity is the use of scientific methods in research to make the research logical and acceptable.

Table (8) below describes the measurements for a number of variables using Cronbach's alpha reliability coefficient for variables the questions that used Likert's five point scale.

Table 8: Reliability and Validity

| Validity | Cronbach's Alpha | Variables | Q.NO |
|-----------------|-------------------------|---|-------------|
| 0.804 | 0.647 | The drivers to technological change | 1 |
| 0.867 | 0.753 | The reasons for employees' resistance to technological change | 2 |
| 0.847 | 0.719 | The reasons for management's resistance to technological change | 3 |
| 0.921 | 0.8 | The necessary strategies to mitigate the resistance to the technological change | 4 |
| 0.917 | 0.842 | The indicators of the technological change | 5 |

* Validity = the square root of Cronbach's alpha reliability coefficient.

It is clear from the above Table that:

- Cronbach's alpha reliability coefficient for the drivers to technological change in the companies is 0.647 and 0.804 by Validity.
- Cronbach's alpha reliability coefficient for the reasons for employees' resistance to technological change is 0.753 and 0.867 by Validity.
- Cronbach's alpha reliability coefficient for the reasons for management's resistance to technological change is 0.719 and 0.847 by Validity.
- Cronbach's alpha reliability coefficient for the necessary strategies to mitigate the resistance to the technological change is 0.85 and 0.921 by Validity.
- Cronbach's alpha reliability coefficient for the indicators of the technological change is 0.842 and 0.917 by Validity.

The result of the Cronbach's alpha test (Table 8) suggests that all the factors have high internal consistency (reliability) which is nearly 0.92. A reliability coefficient of 0.70 or more is considered to be acceptable in most social science research studies.

4.3 Descriptive Statistics

The researcher has carried out descriptive statistics' analysis, including frequencies, percentages, means, standard deviation and coefficients of variation for all the characteristics of the sample, for both independent and dependent variables. These descriptive statistics' analyses were based on an ordinal Likert Scale (1= strongly disagree, 2= tend to agree 3= neutral, 4= agree and 5= strongly agree).

4.3.1 The drivers of technological change

Table 9: Descriptive statistics for the drivers of technological change

| NO. | Statements | MEAN | SD | CV | RANK |
|----------------|--|---------------|----------------|--------------|-----------|
| 1 | Has your company introduced new technology in terms of new equipment or new programmes? | 4.3688 | 0.65992 | 15.11 | 1 |
| 2 | If the company has introduced technological change, are the reasons for the technological change visible to the employees? | 3.9188 | 0.86127 | 21.98 | 2 |
| Average | | 4.1438 | 0.65968 | 15.92 | -- |

According to the descriptive statistics in Table (9), it can be concluded that:

- The most two *identical* variables are 'has your company introduced new technology in terms of new equipment or new programmes?' with a coefficient of variation (15.11%).
- On the other hand, the most two *non identical* variables are 'if the company has introduced technological change, are the reasons for the technological change visible to the employees?' with a coefficient of variation (21.98%).

- The value of the weighted mean for the drivers to technological change is 4.14, with a coefficient of variation (15.92%), therefore there is a positive direction to the drivers to technological change.

Which of the following is an important key driver for technological change in your company?

Table 10: Important key drivers for technological change in the company

| N | Statements | Frequency | Percentage |
|--------------|---------------------------|------------|--------------|
| 1 | Corporate evolution | 81 | 50.6 |
| 2 | Globalization | 14 | 8.8 |
| 3 | Privatization | 9 | 5.6 |
| 4 | Technological development | 54 | 33.8 |
| Total | | 160 | 100.0 |

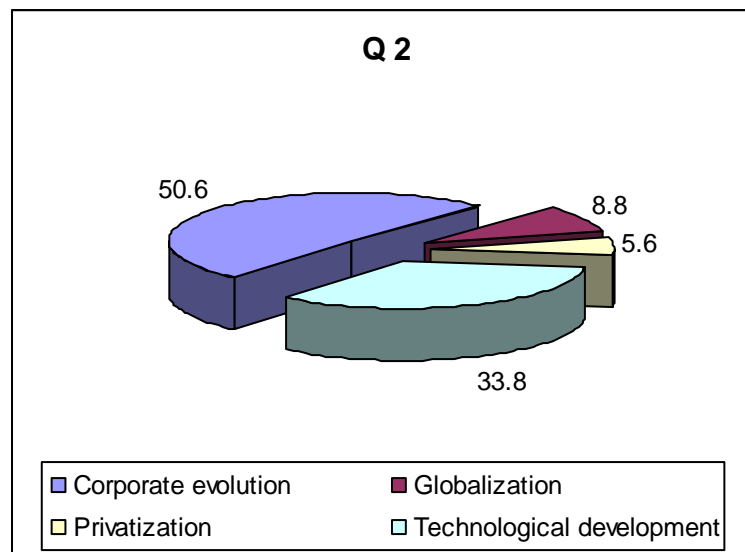


Figure 17: Important key drivers for technological change in the company

According to Table (10) and Figure (17), it can be concluded that the (Corporate evolution) frequency represents (50.6%) while the (Globalization) frequency represents (8.8%) but (Privatization) frequency represents (5.6%) finally (Technological

development) frequency represents (33.8%) from total sample units. From the results it can be deducted that corporate evolution and technical development are the drivers of technological change in UAE public sector companies.

When your company introduced new technology, was there any resistance from the employees to the technological change?

Table 11: When your company introduced new technology, was there any resistance from the employees to the technological change?

| N | Statements | Frequency | Percentage |
|--------------|------------|------------|--------------|
| 1 | Yes | 65 | 40.6 |
| 2 | No | 63 | 39.4 |
| 3 | Don't know | 32 | 20.0 |
| Total | | 160 | 100.0 |

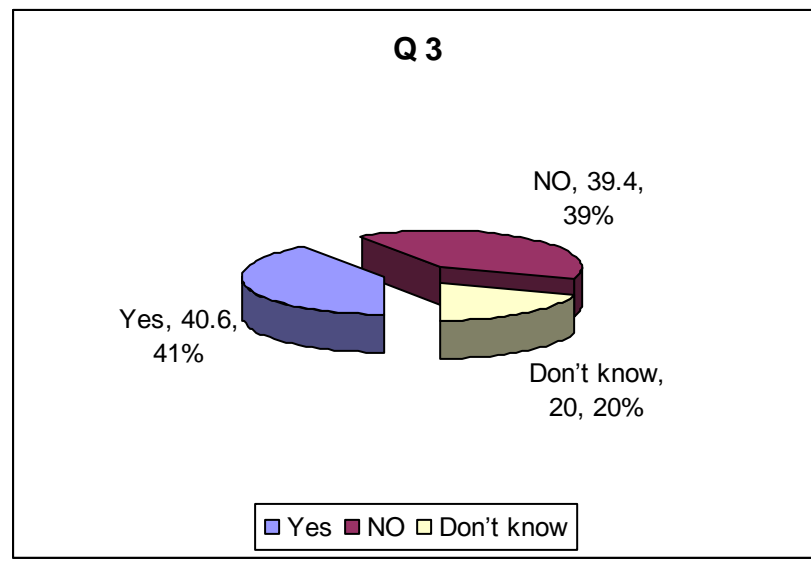


Figure 18: When your company introduced new technology, was there any resistance from the employees to the technological change?

According to Table (11) and Figure (18), it can be concluded that interval of Sector (Yes) represents 40.6%, while the interval (NO) represents 39.4% and finally interval (Don't know) represents 20.0% from total sample units.

4.3.2 The reasons for employees' resistance to technological change

Table 12 : Descriptive statistics for the reasons for employees' resistance to technological change

| NO. | Statements | MEAN | SD | CV | RANK |
|-----|---|--------|---------|-------|------|
| 1 | Are employees rewarded when technological change is successfully implemented? | 3.2000 | 1.15361 | 36.05 | 15 |
| 2 | When employees resist technological change, is their job performance in the company affected? | 3.3313 | 0.98875 | 29.68 | 11 |
| 3 | Does resistance to technological change impact on the employee's loyalty to the company? | 3.5250 | 1.01529 | 28.80 | 10 |
| 4 | Are there clearly defined implementation steps for your employees for the technological change process in your company? | 3.6250 | 0.95001 | 26.21 | 8 |
| 5 | Is there any conflict between the employees' expectations for their jobs and the goals of your company within any new technological change? | 3.4500 | 0.86730 | 25.14 | 5 |
| 6 | Does the management of the company look for and solve the issues of the employees that arise during technological change? | 3.6375 | 0.93491 | 25.70 | 6 |
| 7 | Do employees have a fear of uncertain outcomes from new technological change? | 3.7000 | 0.90977 | 24.59 | 4 |
| 8 | Do employees lack the necessary information, skills and adequate training to accept new technological change? | 3.4438 | 1.16418 | 33.81 | 13 |

| | | | | | |
|----------------|---|---------------|----------------|--------------|-----------|
| 9 | Are employees comfortable with current technology and routine procedures? | 3.6188 | 0.83079 | 22.96 | 3 |
| 10 | Do employees desire to keep their existing positions in the company? | 3.8250 | 0.87272 | 22.82 | 2 |
| 11 | Is training given with supporting materials to create confidence in the system and the processes? | 3.9313 | 1.01015 | 25.70 | 7 |
| 12 | Are ideas openly communicated and encouraged within the implementation of technological change? | 3.5625 | 0.99488 | 27.93 | 9 |
| 13 | Are there long periods of planning before technological change is delivered? | 3.4313 | 1.17426 | 34.22 | 14 |
| 14 | Do employees understand why technological change is happening and why it is necessary? | 3.9750 | 0.69996 | 17.61 | 1 |
| 15 | Does the change agent lack the required skills necessary to adopt new technological change in your company? | 3.2938 | 1.05566 | 32.05 | 12 |
| Average | | 3.5700 | 0.45301 | 12.69 | -- |

According to the descriptive statistics in Table (12), it can be concluded that:

- The seven most *identical* variables are: do employees understand why technological change is happening and why it is necessary? Do employees desire to keep their existing positions in the company? Are employees comfortable with current technology and routine procedures? Do employees have a fear of uncertain outcomes from new technological change? Is there any conflict between the employees' expectations for their jobs and the goals of your company within any new technological change? Is training given with supporting materials to create confidence in the system and the processes? And finally: Does the management of the company look for and solve the issues of the employees that arise during

technological change? These variables were calculated as having the following coefficient of variation (17.61%); (22.82%); (22.96%); (24.59%) and (25.14%), (25.7%) and (25.7%) respectively.

- On the other hand, the seven most ***non identical*** variables are: are employees rewarded when technological change is successfully implemented? Are there long periods of planning before the technological change is delivered? Do employees lack the necessary information, skills and adequate training to accept new technological change? Does the change agent lack the required skills necessary to adopt new technological change in your company? When employees resist technological change, is their job performance in the company affected? Does resistance to technological change impact on the employee's loyalty to the company? Does resistance to technological change impact on the employee's loyalty to the company? Are ideas openly communicated and encouraged within the implementation of technological change? Respectively The coefficient of variation for these variables were calculated as (36.05%); (34.22%); (33.81%); (32.05%) and (29.68%), (28.8%) , (27.93%) .
- The value of the total weighted mean for the reasons for employees' resistance to technological change is (3.57), with coefficient of variation (12.69%) which is in a positive direction.

When the company introduces new technology is there any resistance from the management to the technological change?

Table 13: When the company introduces new technology is there any resistance from the management to the technological change?

| N | Statements | Frequency | Percentage |
|--------------|-------------------|------------------|-------------------|
| 1 | Yes | 27 | 16.9 |
| 2 | No | 95 | 59.4 |
| 3 | Don't know | 38 | 23.8 |
| Total | | 160 | 100.0 |

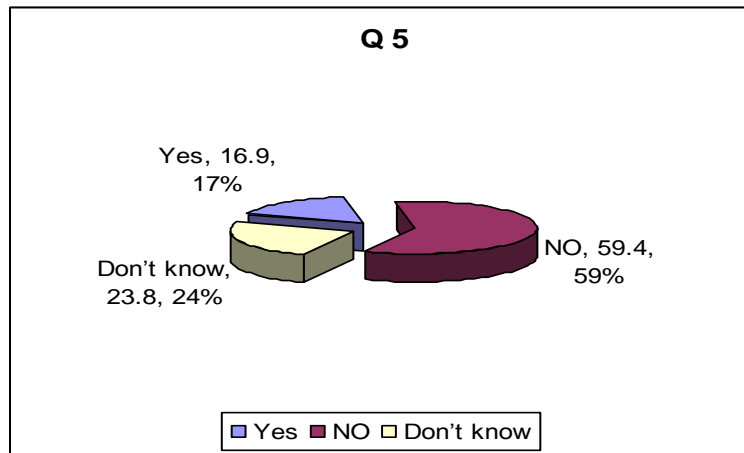


Figure 19: When the company introduces new technology is there any resistance from the management to the technological change?

According to Table (13) and Figure (19), it can be concluded that interval (Yes) represents (16.9.6%) while the interval (NO) represents (59.4.4%) but interval (Don't know) represents (23.8.0%) from the total sample units.

4.3.3 The reasons for management's resistance to technological change

Table 14: Descriptive statistics for the reasons for management's resistance to technological change

| NO. | Statements | MEAN | SD | CV | RANK |
|-----|--|--------|---------|-------|------|
| 1 | Is the high cost of change the primary reason for management's resistance to change? | 3.4103 | 1.14651 | 33.62 | 5 |
| 2 | Does the management team have a fear of losing their current job in the company? | 3.3846 | 1.15542 | 34.14 | 6 |
| 3 | Does the management in the company have a fear of losing control and power? | 3.4167 | 1.07738 | 31.53 | 2 |
| 4 | Does the management team work extra time in order to learn more about new technology and manage technological change successfully? | 3.4091 | 1.07627 | 31.57 | 3 |

| | | | | | |
|----------------|---|---------------|----------------|--------------|-----------|
| 5 | Does management team involve employees in designing technological change? | 3.2338 | 1.14214 | 35.32 | 7 |
| 6 | Does the management team have feelings of indifference to their subordinates? | 3.0584 | 1.02413 | 33.49 | 4 |
| 7 | Do managers give their priority to other business objectives rather than pay attention to technological change? | 3.2581 | 1.01187 | 31.06 | 1 |
| Average | | 3.3053 | 0.65549 | 19.83 | -- |

According to the descriptive statistics in Table (14) it can be concluded that:

- The most three *identical* variables are: do managers give their priority to other business objectives rather than pay attention to technological change? Does the management in the company have a fear of losing control and power? And finally, does the management team work extra time to learn more about new technology and manage the technological change successfully? These variables were calculated to have the coefficients of variation of (31.06 %), (31.53%) and (31.57%) respectively.
- The three most *non identical* variables are: does management team involve employees in designing technological change? Does the management team have a fear of losing their current job in the company? Is the high cost of change the primary reason for management's resistance to change? with coefficients of variation of (35.32%), (34.14%) and (33.62%) respectively.
- The value of the total weighted mean for the reasons for management's resistance to technological change is (3.30), with a coefficient of variation of (19.83%), therefore there is a positive direction for the reasons for management's resistance to technological change.

Are there suitable and practical procedures that can be put in place to overcome the resistance to the technological changes?

Table 15: Are there suitable and practical procedures that can be put in place to overcome the resistance to the technological changes?

| N | Statements | Frequency | Percentage |
|--------------|------------|------------|--------------|
| 1 | Yes | 76 | 47.5 |
| 2 | No | 44 | 27.5 |
| 3 | Don't know | 40 | 25.0 |
| Total | | 160 | 100.0 |

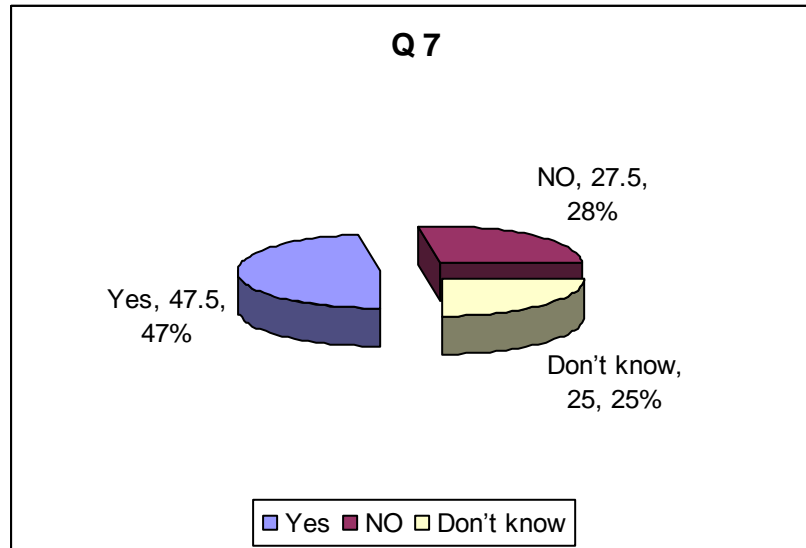


Figure 20: Are there suitable and practical procedures that can be put in place to overcome the resistance to the technological changes
According to Table (15) and Figure (20), it can be concluded that interval of Sector (Yes) represents (47.5%) while the interval (No) represents (27.5%) but interval (Don't know) represents (25.0%) from the total sample units .

4.3.4 Necessary strategies to mitigate resistance to technological change

Table 16: Descriptive statistics for the necessary strategies to mitigate resistance to technological change

| NO. | Statements | MEAN | SD | CV | RANK |
|----------------|---|---------------|----------------|--------------|-----------|
| 1 | Is communication about technological? Change timely and relevant? | 3.7610 | 0.90329 | 24.02 | 1 |
| 2 | Does the company provide adequate training courses to increase job performance and remedy the resistance to change? | 3.7025 | 1.13715 | 30.71 | 3 |
| 3 | Does the management team empower employees in the change process and listen to them to fulfill their needs? | 3.6013 | 1.05842 | 29.39 | 2 |
| 4 | Do leaders in the company meet with employees who encounter difficulties in the change process? | 3.3648 | 1.07575 | 31.97 | 4 |
| 5 | Is there an effective rewarding policy to pay for performance? | 3.2201 | 1.32478 | 41.14 | 5 |
| Average | | 3.5304 | 0.87482 | 24.78 | -- |

According to the descriptive statistics in Table (16) it can be concluded that:

- The most two *identical* variables are: is communication about technological change timely and relevant? Does the management team empower the employees in the change process and listen to them to fulfil their needs? With coefficients of variation of (24.02%) and (29.39%) respectively.
- On the other hand, the three most *non identical* variables are: is there an effective rewarding policy to pay for performance? Do leaders in the company meet with employees who encounter difficulties in the change process? Does the company

provide adequate training courses to increase job performance and remedy the resistance to change? With coefficients of variation of (41.14%), (31.97%) and (30.71%) respectively.

- The value of the total weighted mean for the necessary strategies to mitigate resistance to technological change is (3.5304), with a coefficient of variation of (24.78%), therefore there is a positive direction for the necessary strategies to mitigate the resistance to technological change.

Does technological change influence the company positively?

Table 17: Does technological change influence the company positively?

| N | Statements | Frequency | Percentage |
|--------------|------------|------------|--------------|
| 1 | Yes | 126 | 78.8 |
| 2 | No | 18 | 11.3 |
| 3 | Don't know | 16 | 10.0 |
| Total | | 160 | 100.0 |

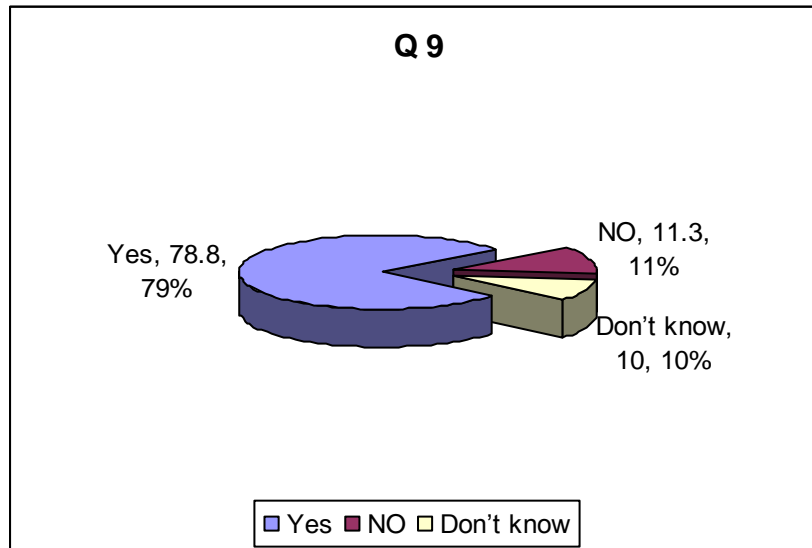


Figure 21: Does technological change influence the company positively?

According to Table (17) and Figure (21), it can be concluded that interval of Sector (Yes) represents (78.8%) while the interval (No) represents (11.3%) and interval (Don't know) represents (10.0%) from the total sample units.

4.3.5 Indicators of technological change

Table 18: Descriptive statistics for of the technological change

| NO. | Statements | MEAN | SD | CV | RANK |
|----------------|---|---------------|----------------|--------------|-----------|
| 1 | Does technological change improve the quality of work? | 4.3875 | 0.57174 | 13.03 | 1 |
| 2 | Does technological change increase the efficiency and productivity of the employees in the company? | 4.2250 | 0.80837 | 19.13 | 3 |
| 3 | Does technological change reduce the total number of errors? | 4.1250 | 0.79898 | 19.37 | 4 |
| 4 | Was the company able to increase job performance after adopting new technologies? | 3.6688 | 0.84468 | 23.02 | 6 |
| 5 | Was the company able to control work and processes more efficiently with the new technologies? | 3.9875 | 0.79295 | 19.89 | 5 |
| 6 | Are work tasks accomplished quickly with the new technologies? | 4.3875 | 0.73715 | 17.76 | 2 |
| Average | | 4.1500 | 0.57174 | 13.03 | -- |

According to the descriptive statistics in Table (18) it can be concluded that:

- The three most *identical* variables are: does technological change improve the quality of work? Are work tasks accomplished quickly with the new technologies? Does technological change increase the efficiency and productivity of the employees in the company? With coefficients of variation of (13.03%), (17.76%) and (19.13%).

- The most three non *identical* variables are: was the company able to increase job performance after adopting new technologies? Was the company able to control work and processes more efficiently with the new technologies? Does technological change reduce the total number of errors? With coefficients of variation of (23.02%), (19.89%) and (19.37%) respectively.
- The value of the total weighted mean for the necessary strategies to mitigate the resistance to the technological change is (4.1500), with a coefficient of variation of (13.03 %), therefore there is a positive direction for the necessary strategies to mitigate the resistance to the technological change.

4.4 Analysis of Variance (ANOVA)

This section of the study is intended to examine the completely randomized data of the respondents by using a one-way analysis of variance. The one-way ANOVA compares the means of the respondents' opinions on the technological change based on one factor, the studied UAE companies.

Table 19: Analysis of single direction variables in order to compare the semantics of differences between the variable acceptance rates

| | Dimension | Sector | MEAN | SD | F-test | Sig.level |
|---|---|--------|--------|---------|---------------|-----------|
| 1 | The drivers to technological change | A | 3.9000 | 0.74421 | 3.665* | 0.014 |
| | | B | 4.2125 | 0.70609 | | |
| | | C | 4.3625 | 0.55456 | | |
| | | D | 4.1000 | 0.54538 | | |
| 2 | The reasons for employees' resistance to technological change | A | 3.4750 | 0.44739 | 12.636** * | 0.000 |
| | | B | 3.8050 | 0.24594 | | |
| | | C | 3.7067 | 0.36384 | | |

| | | | | | | |
|---|---|---|--------|---------|----------|-------|
| | | D | 3.2933 | 0.52921 | | |
| 3 | The reasons for management's resistance to technological change | A | 3.2103 | 0.68255 | 6.650*** | 0.000 |
| | | B | 3.5637 | 0.45419 | | |
| | | C | 3.4643 | 0.45378 | | |
| | | D | 2.9929 | 0.81390 | | |
| 4 | The necessary strategies to mitigate the resistance to the technological change | A | 3.3650 | 0.95099 | 0.015** | 0.010 |
| | | B | 3.8211 | 0.60590 | | |
| | | C | 3.6800 | 0.57966 | | |
| | | D | 3.2700 | 1.13549 | | |
| 5 | The indicators of job performance | A | 3.9250 | 0.57975 | 2.526* | 0.050 |
| | | B | 4.0208 | 0.49093 | | |
| | | C | 4.2000 | 0.34633 | | |
| | | D | 4.2167 | 0.75692 | | |

* Parameter is significant at the (.05) level.

** Parameter is significant at the (.01) level.

***Parameter is significant at the (.001) level

The following points are made clear from looking at Table (19). There are significant statistical differences between the respondents in each of the four sectors that have been looked at in the field study, (A-B-C-D), following: the drivers to technological change, where the level of significance is less than (0.05). There are also differences concerning the reasons for employees' resistance to technological change at a level of significance less than (0.001) and also there are differences concerning the reasons for management's resistance to technological change at a level of significance less than (0.001).

Additionally, there are differences concerning the necessary strategies required to mitigate the resistance to technological change at a level of significance less than (0.01). There are some differences in the indicators of technological change at a level of significance less than (0.05).

Given the differences shown between the respondents in the research sample in different fields, it is, therefore, necessary for a less significant difference test to determine significant differences between the middle two samples looking at each one separately.

Table 20: The least significant difference (LSD) test to measure the level of significance and the differences between the averages of the sample

| NO | Dimension | Sector | | | | |
|----|---|--------|------------|-----------|------------|---|
| | | Sector | A | B | C | D |
| 1 | The drivers to technological change | A | 1 | | | |
| | | B | -.31250(*) | 1 | | |
| | | C | -.46250(*) | -0.15000 | 1 | |
| | | D | -0.20000 | 0.11250 | -0.26250 | 1 |
| 2 | The reasons for employees' resistance to technological change | A | 1 | | | |
| | | B | -.33000(*) | 1 | | |
| | | C | -.23167(*) | 0.09833 | 1 | |
| | | D | .18167(*) | .51167(*) | -.41333(*) | 1 |
| 3 | The reasons for management's resistance to technological change | A | 1 | | | |
| | | B | -.35339(*) | 1 | | |
| | | C | -0.25397 | 0.09942 | 1 | |

| | | | | | | |
|---|--|---|------------|-----------|------------|---|
| | | D | 0.21746 | .57085(*) | -.47143(*) | 1 |
| 4 | The necessary strategies required to mitigate resistance to the technological change | A | 1 | | | |
| | | B | -.45605(*) | 1 | | |
| | | C | -0.31500 | 0.14105 | 1 | |
| | | D | 0.09500 | .55105(*) | -.41000(*) | 1 |
| 5 | The indicators of technological change | A | 1 | | | |
| | | B | -0.09583 | 1 | | |
| | | C | -.27500(*) | -0.17917 | 1 | |
| | | D | -.29167(*) | -0.19583 | 0.17917 | 1 |

(*) Parameter is significant at the (.05) level.

The following points are clear from Table (20). The least significant difference (LSD) to measure the significant differences between the averages of the sample are as follows:

- For the first variable, the drivers to technological change, there is significant difference between (A-B) and also (A-C) at a level less than (0.05). Thus it can be said that the factors identified as drivers of technological change are valid as given in the refined framework and the impact of these factors on UAE organizations is different depending on the nature of the organization.
- For the second variable, the reasons for employees' resistance to technological change, there are significant differences between (A-B-C-D) and also between (B-D) and also between (C-D) at a level less than (0.05)? From the results it can be interpreted that the reasons for employees' resistance to technological change as depicted in the refined framework are valid and can be applied to UAE organizations.

- For the third variable, the reasons for management's resistance to technological change, there is a significant difference between (A-B), between (B-D) and also between (C-D) at a significant level (0.05). Results indicate that the parameters pertaining to management reasons for resistance to technological change can be interpreted to be valid and reliable as applied to UAE organizations as depicted in the refined framework.
- For the fourth variable, the necessary strategies required to mitigate the resistance to the technological change, there is significant difference between (A-B), between (B-D) and also between (C-D) at a less significant level (0/05). Thus it can be interpreted that the refined framework is valid and reliable in respect to the strategies that help organizations to mitigate the impact of the employees on resistance to change.
- For the fifth variable, the indicators of the technological change, there is a significant difference between (A-B-C-D) at a less significant moral level (0.05) than for (0.05) . Results indicate that the parameters' pair means were significantly different and that the refined framework is valid and reliable in this respect.

In conclusion, the LSD tests results indicate that the refined framework is valid, reliable and flexible and thus can be applied to UAE organizations generally with respect to new technology adoption and can lead to an improvement in employees' job performance and hence in organizational efficiency.

4.5 An Outline of the Interviews

After analysing the collected data from the respondents next the researcher approached different UAE public sector companies' managers to find out their willingness to participate in an interview. Three middle level managers from public sector companies showed their willingness to participate. They were from UAE public sector companies. The managers worked in Human Resources and Information Technology departments. The managers were selected based on their level of education, age, experience, level of decision-making power, responsibilities and position. An interview was arranged with the participants who had agreed to be interviewed and the importance of the interview

questions and the reasons for interview were explained to them. Additionally, they were told what type of questions would be asked in order to make them more comfortable in answering the questions. The reasons behind conducting the semi-structured interviews was to understand how employees are affected by technology change in organizations and what are the major reasons and factors that lead to employee resistance to technology change. The questions were designed to understand the impact of, and the reasons for, employee resistance to technology change, the reasons for management resistance to technology change, and the necessary strategies required to mitigate resistance to technology change. Open-ended questions were discussed with the interview participants. The following sections will discuss what affects employee resistance to technology change. Based upon the outcome of the interviews a proposed framework presented as depicted in Figure 22.

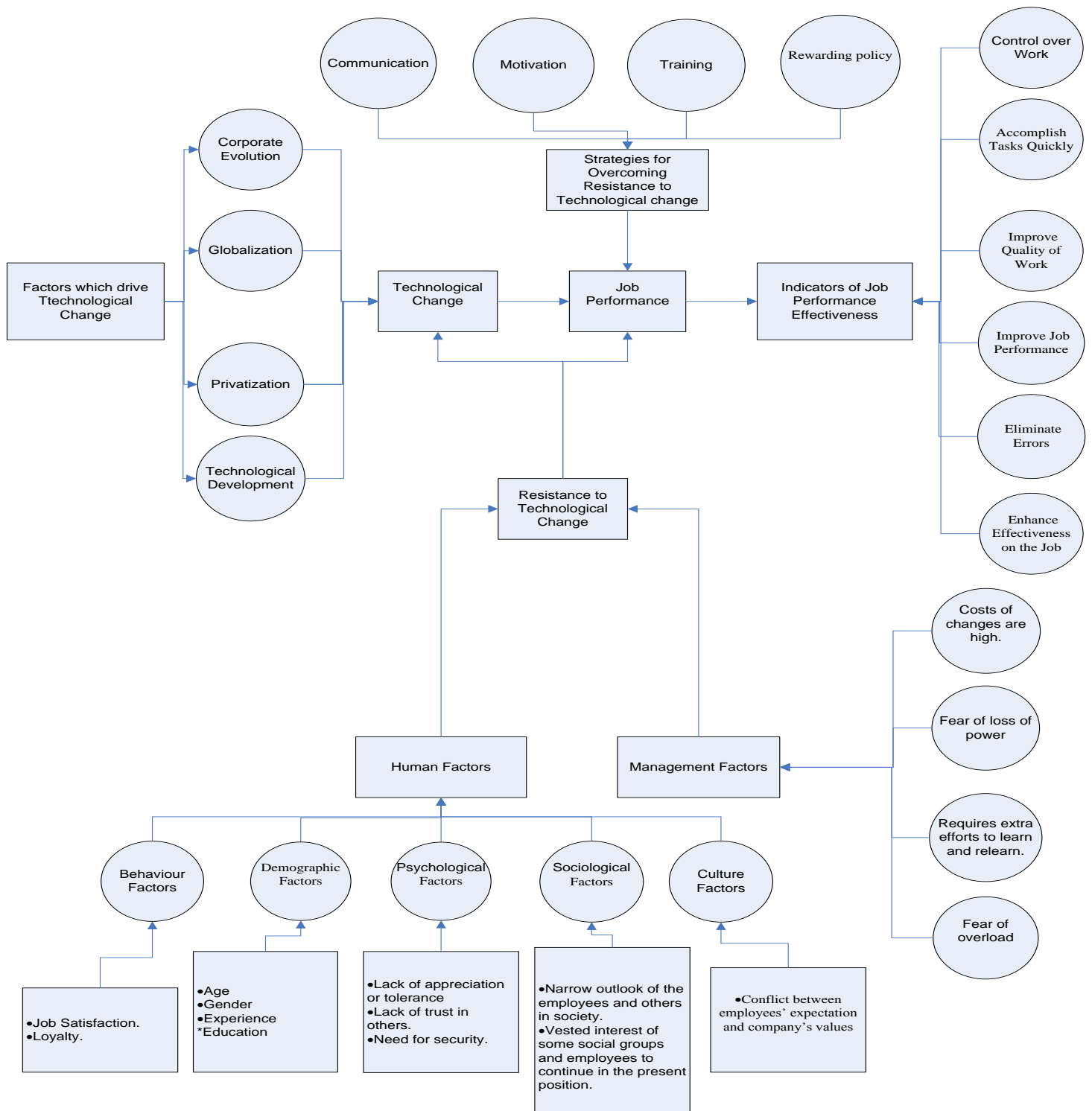


Figure 22: The Framework (Stage 1)

4.5.1 Interviews' Analysis

The analysis of the interviews relating to the Framework of Assessing Resistance to Technology Change for Improved Job Performance is based on a scale of 1-6 in importance as follows: 1= very important, 6= of least importance.

Table 21: Factors which drive technological change

| Factors which are drivers of technological change | Interview 1 | Interview 2 | Interview 3 |
|--|--------------------|--------------------|--------------------|
| Corporate evolution | 2 | 2 | 1 |
| Globalization | 3 | X | X |
| Privatization | X | X | X |
| Technological | 1 | 1 | 2 |

When analyzing the outcomes from the three interviews (and summarizing the overall information in the Tables above) it can be clearly seen that Table (21) shows that the **main drivers to technological change** in terms of their importance (and with regard to the working environment within an organization) are technological development and corporate evolution, while globalization and privatization have minor effects or no effects as drivers of technological change.

Table 22: Resistance factors to technological change

| Resistance factors to technological change | Interview 1 | Interview 2 | Interview 3 |
|---|--------------------|--------------------|--------------------|
| Human factors | | | |
| Behaviour factors | | | |
| Job dissatisfaction | 1 | 1 | 1 |
| Demographic factors | | | |
| Age | 5 | X | X |
| Lack of experience | 6 | 2 | 3 |

| | | | |
|---|---|---|---|
| Psychological factors | | | |
| Need for job security | 3 | 3 | 5 |
| Lack of appreciation | 4 | 5 | 2 |
| Cultural factors | | | |
| Conflict between employees' interest and company's values | 2 | 4 | 4 |
| Management factors | | | |
| Fear of power loss | 1 | 1 | 1 |
| Fear of work overload | 4 | 4 | X |
| Requirement for extra effort and time | 3 | 2 | 3 |
| High cost of technological change | 2 | 3 | 2 |

The companies' managers agreed that there are some **Human factors** that lead to resistance to technological change. As Table (22) shows these Human factors include such factors as **Behaviour factors** (1) job dissatisfaction; **Cultural factors** (2) conflict between the employees' needs and the company; **Demographic factors** (3) lack of experience, and **Psychological factors** (4) the need for job security and (5) a lack of appreciation.

There are other factors such as **Management factors** that lead to resistance to technology change. Such factors include: (1) the fear of power loss, (2) the high cost of technological change, (3) the requirement for extra effort and time, and (4) the fear of work overload.

Table 23: Strategies for overcoming resistance to technological change

| | | | |
|---|--------------------|--------------------|--------------------|
| Strategies for overcoming resistance to technological change | Interview 1 | Interview 2 | Interview 3 |
| | | | |

| | | | |
|---------------|---|---|---|
| Communication | 1 | 1 | 1 |
| Motivation | X | 4 | X |
| Training | 3 | 3 | 2 |
| Rewards | 2 | 2 | 3 |

There is a general conformity among all the companies with regard to effective **strategies to overcoming resistance**, which was illustrated in Table (23). This indicated that communication and understanding employees' needs are extremely crucial in helping to reduce resistance to technological change. Is also rewarding policy and introducing training sessions that extremely significant will mitigate the effect of resistance to technological change.

Table 24: Indicators of job performance

| Indicators of job performance | Interview 1 | Interview 2 | Interview 3 |
|--------------------------------------|--------------------|--------------------|--------------------|
| Control over work | 5 | 4 | 6 |
| Accomplishment of tasks quickly | 2 | 2 | 2 |
| Improving the quality of work | 1 | 1 | 1 |
| Improve job performance | 4 | 5 | 4 |
| Eliminate errors | 3 | 3 | 3 |
| Enhance effectiveness on the job | 6 | 6 | 5 |

Where good strategies to overcome resistance to technological change have been applied, it can be concluded from the interviewees' responses shown in Table (24) that the **indicators of enhanced job performance** factors are: improved quality of work, that the tasks will be accomplished more quickly with fewer errors, more control over work and

enhanced effectiveness on the job. All these factors will ensure that the total job performance will be improved. To conclude, and based on the results of the three interviews, the main framework can be shortened and can be more focused, as shown in the Framework (Stage 2) below.

In this stage the researcher aims to present the changes that have been made based on the interviews' outcomes. As stated in the analysis of the outcomes of the interviews, it has been identified that there are some factors that do not affect technology change and these factors have been eliminated from the initial framework (stage 1) and a new framework (stage 2) has been developed based on the interview results. The major changes are depicted in the following Figure (23) Framework - Stage 2.

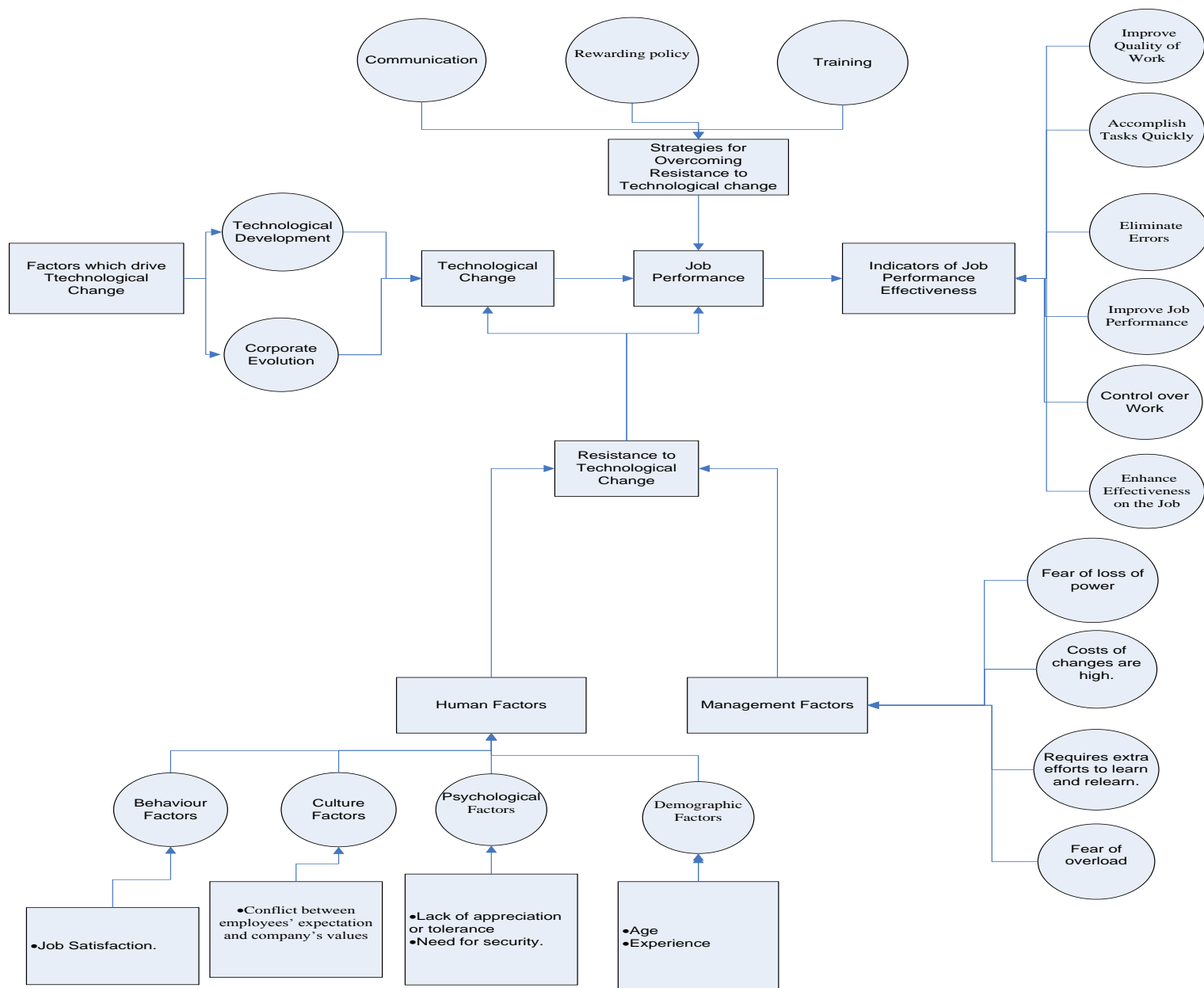


Figure 23: The Framework (Stage 2)

From the interview results and analysis the researcher understood that technology development and corporate evolution are the only factors that drive technology change and that globalization and privatization do not affect an organization as drivers for technology change. This is maybe due to the notion that employees are not aware of company plans because they are public companies and any changes and plans come from the government. According to Gray (2005), many companies who have globalization

plans keep any changes secret from their employees and because of this fact they create problems in the workforce. It is important for organizations to take steps in order to avoid such situations; in such cases organizations can be more specific about the planned changes and explain how they will benefit the employees in providing better career opportunities or in terms of the pay and bonuses. Similarly they have to do in case of privatization as these are public sector companies where employees feel more secure in terms of their jobs and positions. Abeysinghe and Paul (2005) explained that private organizations can easily adopt technological changes within the company and can hire employees with the required skills needed for these changes, whereas for public sector organizations adopting and implementing new technology is not always that easy and their employees will not always have the required skills which can make them feel apprehensive about their jobs, discontented with their work and resistant to change. Thus these two factors (globalisation and privatisation) were eliminated at stage 2. Communication, a policy of giving rewards and training are the strategies that can assist in overcoming resistance to technology. The factor of motivation was removed by the interviewees. Thus this factor is eliminated in stage 2.

There were no specific changes made between stages 1 and 2 concerning the indicators of job performance because all the answers that were received in the interviews were the same answers as all the factors in stage 1 that showed the effect on the job performance. There were no changes made between the two stages in the management factors that showed resistance to technology change as all the factors that show impact on technology change were as stated already in stage 1. The researcher identified some human factors that do not lead to resistance to technology change and at stage 2 some behavioural factors (loyalty), demographic factors (gender, education), psychological factors (lack of trust in others) were eliminated. It is surprising to see that none of the sociological factors listed in stage 1 showed any resistance to technology change and thus all the sociological factors were eliminated at stage 2. With some of major changes in the initial framework (stage 1) and new framework (stage 2, refined framework) has been developed as the researcher had identified that some of the factors listed in the stage 1 framework were not

affecting resistance or were not reasons for resistance and thus modifications were made to the initial framework (stage 1).

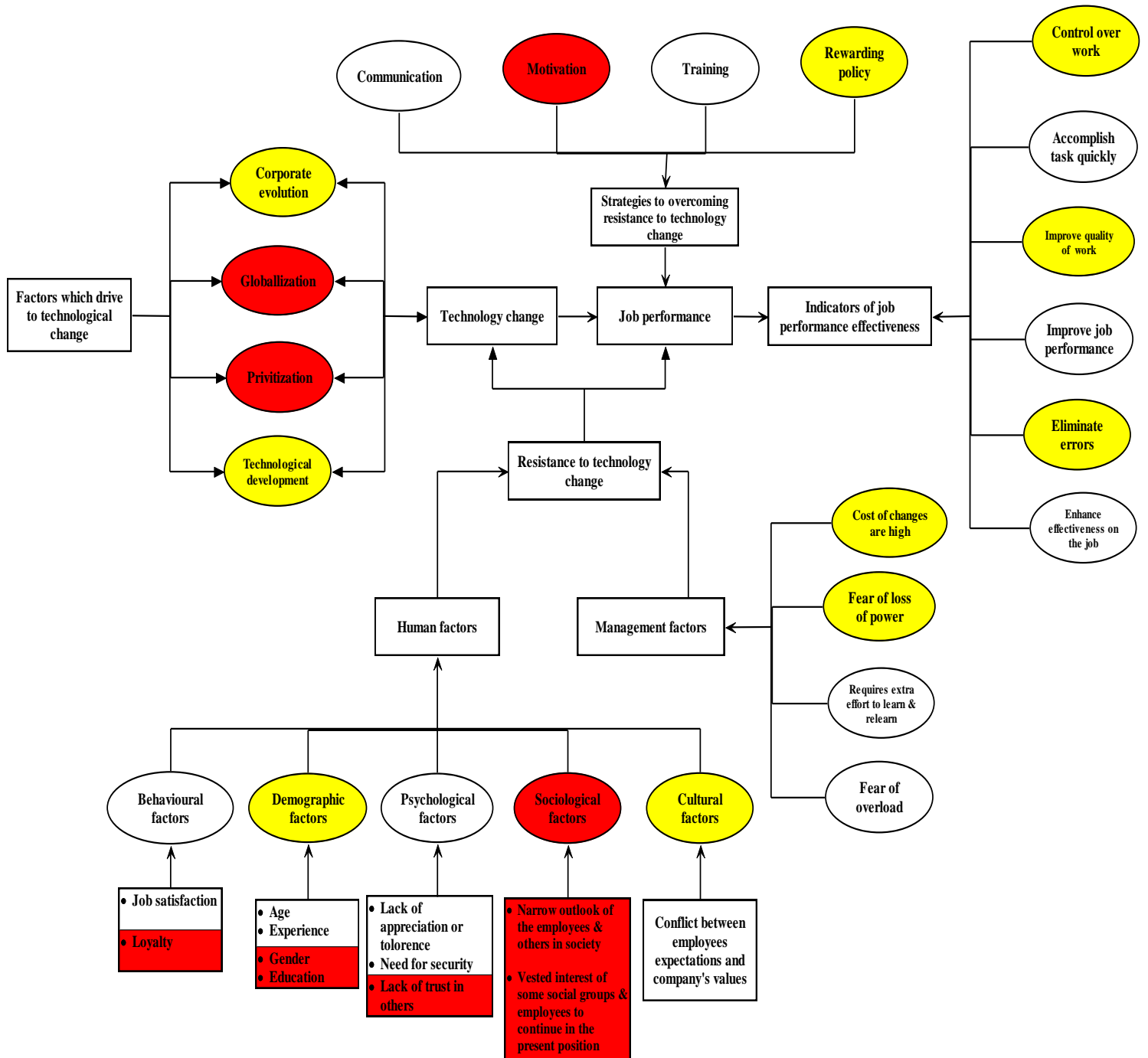


Figure 24: The Final Framework (Revised Stage 1- Figure 22)

Red colour: Removed items.



Yellow colour: Moved items.



This research has made a few changes to the initial framework and these are shown in stage 2. As depicted in the above Figure (Figure 24 revised) the red blocks indicate the deleted items (as these are factors that do not affect technology change) and the yellow blocks refer to the factors which have been moved within the framework based on the preferences given (from a choice ranging from less important to very important). As per the interview results it is understood that factors such as globalization and privatization are not the factors that drive technological change thus, at this stage, these two factors were deleted. It was also discovered that technological development is given more importance when considered with the factor of corporate evolution so these two items have been moved as per the preferences given by the participants. Motivation was shown not to affect strategies used to overcome resistance to technology change so this item was removed from the framework. The policy of rewarding was given more preference when compared to training so this was moved to the second position. When looking at the indicators of job performance effectiveness, the most important were improving the quality of work, accomplishing the task, and eliminating errors so these factors were moved based on the participants' preferences. When considering the management factors which impinge on resistance to technology change the highest preference was given to fear of loss and to the cost of changes so the positions of these two items have been changed. Finally, when considering human factors that impinge on resistance to technology change it has been concluded that sociological factors do not have any affect on resistance to change so this has been removed from the framework. Cultural factors were given the second place of importance (in terms of affecting technology change) so they have been moved to the second position. Furthermore demographic and psychological factors were given least importance so they have been moved to the last position. As per the interview results it was shown that within the behavioural factors loyalty does not have any impact; within the demographic factors gender and education have no effect, and within the psychological factors a lack of trust in others does not have any effect on resistance to technology change which is clear from the results of the

analysis (tables 23 and 24) thus all these factors have been removed from the framework at stage 2.

4.6 Design and background of framework components

At stage 1 this research has designed a framework with different factors that focus on four major components. First the researcher has identified four factors that drive technological change from the literature review as corporate evolution which occurs due to market implications that force organizations to change their policies with regard to culture, values and approaches (Ghanem, 2001), globalization which brings many benefits like decreasing operating costs, attracting more customers, increasing lending opportunities, enhancement of creditworthiness (Watermann and Peters, 2004), privatization which refers to transfer of ownership of an organization or businesses from government to a privately owned entity (Buchanan and Huczynski, 2004) and technological development which refers to continuous improvements in the abilities of companies to do things faster, better and cheaper (Chapman, 2002).

Secondly the researcher identified reasons for employees' resistance to technological change which are categorized under human factors. Five major components under human factors were identified. First, behavioural factors which include employee behaviour, perceptions and opinions in relation towards specific change such as job satisfaction, loyalty (Paul, Mike and Rodger, 2006). Second, demographic factors which include person's age, gender, education and experience (Lombard and Crafford, 2003). Third, psychological factors which refers to a state of going from the known to the unknown in relation to adapt to and accept changes or any situations. For ex. lack of appreciation or tolerance, need for security, lack of trust in others (Kailash and Thomas, 1998). Fourth, sociological factors that relate to a person's feeling of belongingness such as narrow outlook of employees and others in society, vested interest of some social groups and employees to continue in the present position (Lines, 2004) and finally cultural factors that relate to a person's shared assumptions, values and beliefs such as conflict between employee expectations and company's values (Greenberg and Cropanzano, 2001).

From the literature review the researcher identified management's resistance to technological change that included four components such as cost of changes are high wherein when management thinks that change is inevitable they are afraid of the expenses that may be involved in the change process and in changing technology. Costs that may occur because of installing new technology, for training and development that may take place to assist the employees to learn about the adjusted technology, installation expenses (Kaila, 2005), fear of loss of power where in during the change process, managers have a fear of losing their power or designation (Carr, 2002), requires extra effort to learn and re learn where in the need to learn and re-learn and acquire knowledge about the new changes that are taking place in an organization (Kaila, 2005), and finally fear of overload where in managers or employees have a fear that they will get overloaded in the change process by having to learn new things, attend training sessions, ensure that the employees learn, acquire new knowledge and spend more time in the office (Kaila, 2005).

Third, from the literature review researcher identified four strategies to overcome resistance to technology change. First, communication that refers to the interaction between management and employees in an organization which helps in passing information for effective work processes (Cornelissen, Kafouros and Lock, 2005). Second motivation referred to as boosting employee performance through assistance, guidance, discussions with employees that help in improving employee performance (Yusoff, Kian and Idris, 2013). Third, training sessions are said to provide a kind of motivation for employees to improve their performance, helps creating awareness of the job, improves knowledge and achieve the organizational goals effectively (Palmer and Dunford, 2008). Finally, rewarding policy as a motivator is used to provide compensation and recognition in the form of money or something of equal value brings satisfaction to employees and boosts employee morale (Stavarakakis, 2008).

Finally six components under indicators of job performance were identified from literature. First, control over work environment is said to be done internally or externally. The internal foci of control are the indicators of long term career success, such as promotion, training and development of reward systems etc. which helps an organization

in providing quality of service and brings success by achieving its goals quickly. External job control indicators include creating job opportunities which will help an organization's employees and individuals in avoiding stress (Mathieu and Zajac, 2000). Second, accomplish task quickly which refers to a commitment to provide quality of service for customers within a timely manner creates more opportunities for company development (Krull and MacKinnon, 2001). Third, improving quality of work refers to strategies used to make improvements in the work process and services provided to customers and overall work performance (Ali and Davies, 2003). A fourth component is improving job performance of employees through appraisals and motivational programs (Whitener, 2001). Finally, enhance effectiveness on the job which refers to improving employee performance through training, motivation, rewards etc. that helps employee to effectively perform their jobs (Mathieu and Zajac, 2000).

At stage 2 the researcher refined the framework through collecting data using interview questionnaire (conducted for middle managers). At this stage the researcher designed an interview questionnaire that included a list of factors that were identified at stage 1. This helped the researcher to identify the errors in the previous framework and helped to develop a new framework with the newly collected data. Several modifications were made in this stage in order to refine the framework. In the final stage (stage 3) the collected data was used to validate the refined framework. Here the researcher validated the refined framework through semi-structured. The final validated framework was developed with some modifications. The following table (25) depicts the framework components and major changes (change in positions as per preferences) done for each factor at each stage of framework refinement process.

Table 25: Changes made in the Framework revision process

| Component name | Sub components | Definition | Reference | Stage 1 | Stage 2 | Stage3 |
|--|---------------------|---|---|------------|---------|------------|
| Factors that drive technological change | | | | | | |
| | Corporate evolution | Corporate evolution occurs due to market implications that force organizations to change their policies with regard to culture, values and approaches | Shihab M. Ghanem, 2001. <i>Industrialization in UAE</i> , United Arab Emirates: A new perspective | Position 1 | Moved | Position 2 |

| | | | | | | |
|---|---------------------------|--|---|------------|-----------|------------|
| | Globalization | To be competitive with foreign companies, domestic firms are continuously improving technology. Such changes refers to globalization which brings many benefits like decreasing operating costs, attracting more customers, increasing lending opportunities, enhancement of creditworthiness etc. | Peters, T.J. and Watermann, R.H., 2004. <i>In Search of Excellence</i> , Profile Books, London | Position 2 | Deleted | Deleted |
| | Privatization | Privatization refers to transfer of ownership of an organization or businesses from government to a privately owned entity | Buchanan, D., & Huczynski, A., 2004. <i>Organizational Behavior: An Introductory Text</i> (5th ed), Essex, Pearson Education Limited | Position 4 | Deleted | Deleted |
| | Technological development | Technological development refers to continuous improvements in the abilities of companies to do things faster, better and cheaper | Chapman J, 2002, A framework for transformational change in organizations”, <i>Leadership and organizational development journal</i> . 23 (1), pp. 16 – 25 | Position 3 | Moved | Position 1 |
| Resistance to technological change | | | | | | |
| Human factors | | | | | | |
| | Behavioural factors | These factors refer to employee behaviour, perceptions and opinions in relation towards specific change such as job satisfaction, loyalty etc. | Paul .M .S, Mike .S and Rodger. M, 2006. Employee Involvement, Attitudes and Reactions to Technology Changes. <i>Journal of Leadership and Organizational Studies</i> . 12 (3), pp.85-100 | Position 1 | No change | Position 1 |
| | Demographic Factors | These factors refer to a person’s age, gender, education and experience | Lombard, C., and Crafford, A., 2003. Competency requirements for first-line managers to deal with resistance to change. <i>SA Journal of Human Resource Management</i> , 1 (1), pp. 42-52 | Position 2 | Moved | Position 4 |
| | Psychological factors | These factors refer to a state of | Kailash and Thomas, | Position 3 | No change | Position 3 |

| | | | | | | |
|---------------------------|--------------------------|--|---|------------|---------|------------|
| | cal factors | going from the known to the unknown in relation to adapt to and accept changes or any situations. For ex. lack of appreciation or tolerance, need for security, lack of trust in others etc. | 1998. Impact of information technology on users work environment: A case of computer aided design system implementation, <i>Information and Management</i> . 34, pp. 349-360 | | | |
| | Sociological factors | Factors that relate to a person's feeling of belongingness such as narrow outlook of employees and others in society, vested interest of some social groups and employees to continue in the present position. | Lines, R. 2004. Influence of participation in strategic change: resistance, Organizational commitment and change goal achievement. <i>Journal of Change Management</i> 4(3), pp.193 - 215 | Position 4 | Deleted | Deleted |
| | Cultural factors | Factors that relate to a person's shared assumptions, values and beliefs. For ex. conflict between employee expectations and company's values | Greenberg, J., and Cropanzano, R., 2001. <i>Advances in organizational justice</i> . Stanford, CA: Stanford University Press. | Position 5 | Moved | Position 2 |
| Management factors | | | | | | |
| | Cost of changes are high | When management thinks that change is inevitable they are afraid of the expenses that may be involved in the change process and in changing technology. Costs that may occur because of installing new technology, for training and development that may take place to assist the employees to learn about the adjusted technology, installation expenses etc. | H.L.Kaila, 2005. Human Resource Management" Gyan Publishing House, 2, pp. 317 | Position 1 | Moved | Position 2 |
| | Fear of loss of power | During the change process, managers have a fear of losing their power or designation | Carr, A., 2002. Jung, archetypes and mirroring in organizational change management: Lessons from a longitudinal case study. <i>Journal of Organizational Change Management</i> . 15 (5), | Position 2 | Moved | Position 1 |

| | | | | | | |
|---|---|---|--|------------|-----------|------------|
| | | | pp.477-489. | | | |
| | Requires extra effort to learn and re learn | The need to learn and re-learn and acquire knowledge about the new changes that are taking place in an organization | H.L.Kaila, 2005. Human Resource Management” Gyan Publishing House, 2, pp. 317 | Position 3 | No change | Position 3 |
| | Fear of overload | Managers or employees have a fear that they will get overloaded in the change process by having to learn new things, attend training sessions, ensure that the employees learn, acquire new knowledge and spend more time in the office etc | H.L.Kaila, 2005. Human Resource Management” Gyan Publishing House, 2, pp. 317 | Position 4 | No change | Position 4 |
| Strategies for overcoming resistance to technological change | | | | | | |
| | Communication | Communication refers to the interaction between management and employees in an organization which helps in passing information for effective work processes | Cornelissen, J.P, Kafouros, M. and Lock, A.R., 2005. Metaphorical images of organization: How organizational researchers develop and select organizational metaphors. Human Relations. 58 (12), pp. 1545 | Position 1 | No change | Position 1 |
| | Motivation | Motivation included boosting employee performance through assistance, guidance, discussions with employees that helps in improving employee performance | Wan Fauziah Wan Yusoff, Tan Shen Kian and Mohammad Talha Mohamed Idris, (2013). Herzberg’s Two Factors Theory On Work Motivation: Does Its Work For Todays Environment? <i>Global journal of commerce and Management</i> , 2 (5), pp.18-22 | Position 2 | Deleted | Deleted |
| | Training | Training sessions will provide a kind of motivation for employees to improve their performance, helps creating awareness of the job, improves knowledge and achieve the organizational goals effectively | Palmer, I and Dunford, R (2008), Organizational Change and the Importance of Embedded Assumptions. British Journal of Management. Vol. 19, S20-S32 | Position 3 | No change | Position 3 |
| | Rewarding policy | Rewarding is a strategy used to provide compensation and recognition in the form of | Stavarakakis, Y., 2008. Peripheral Vision: Subjectivity and the | Position 4 | Moved | Position 2 |

| | | | | | | |
|--|-------------------------|---|--|------------|-----------|------------|
| | | money or something of equal value brings satisfaction to employees and boosts employee morale. | Organized Other: Between Symbolic Authority and Fantasmatic Enjoyment. Organization Studies. 29 (7), pp.1037-1059 | | | |
| Indicators of job performance effectiveness | | | | | | |
| | Control over work | Control over the work environment is done internally or externally. The internal foci of control are the indicators of long term career success, such as promotion, training and development of reward systems etc. which helps an organization in providing quality of service and brings success by achieving its goals quickly. External job control indicators include creating job opportunities which will help an organization's employees and individuals in avoiding stress. | Mathieu, J. E. & Zajac, D. M. (2000). A review and meta-analysis of the antecedents, correlates and consequences of organizational commitment. <i>Psychological Bulletin</i> , 108(2): 171-194 | Position 1 | Moved | Position 5 |
| | Accomplish task quickly | Refers to a commitment to provide quality of service for customers within a timely manner creates more opportunities for company development | Krull, J. L. and MacKinnon, D. P., 2001. Multilevel Modeling of Individual and Group Level Mediated Effects. <i>Multivariate Behavioral Research</i> , 36(2), pp.249-277 | Position 2 | No change | Position 2 |
| | Improve quality of work | Using strategies to make improvements in the work process and services provided to customers and overall work performance | Hassan Ali and D.Roy Davies, 2003. The effect of age, sex and tenure on job performance of rubber tappers. <i>Journal of occupational and organizational psychology</i> . 76, pp. 381-391 | Position 3 | Moved | Position 1 |
| | Improve job performance | Improving so as to improve employee job performance organizations use performance appraisals and motivational programs. | Whitener, E. M., 2001. Do high commitment human resource practices affect employee commitment? | Position 4 | No change | Position 4 |

| | | | | | | |
|--|----------------------------------|---|--|------------|-----------|------------|
| | | | A cross-level analysis using hierarchical linear modeling. <i>Journal of Management</i> . 27(5), pp.515-535 | | | |
| | Eliminate errors | Strategies such as training and motivating helps employees to reduce the level of errors in work process | Whitener, E. M., 2001. Do high commitment human resource practices affect employee commitment? A cross-level analysis using hierarchical linear modeling. <i>Journal of Management</i> . 27(5), pp.515-535 | Position 5 | Moved | Position 3 |
| | Enhance effectiveness on the job | Refers to improving employee performance through training, motivation, rewards etc. that helps employee to effectively perform their jobs | Mathieu, J. E. & Zajac, D. M. (2000). A review and meta-analysis of the antecedents, correlates and consequences of organizational commitment. <i>Psychological Bulletin</i> , 108(2): 171-194 | Position 6 | No change | Position 6 |

4.7 Chapter Summary

In conclusion, it is clearly indicated that the results from the survey and from the interviews give similar valid reasons for resistance to technology change from employees and management and strategies to overcome resistance. The initial framework helped the researcher to refine the factors affecting resistance to technology change and they were prioritised based on their level of impact. In order to develop the refined framework the researcher collected information from the interviews and the survey and this helped the researcher to identify the most significant factors based on the level of impact. Most of the results derived from the survey and the interviews show that technology change has a significant impact due to globalization and technology innovation. The findings from this research shows that within UAE public companies the most important factors that lead to employee resistance and management resistance to technology change are fear of losing

control and power, the high cost of change, and a fear of losing their current job. However, there are positive indications that UAE public sector companies are taking appropriate steps to overcome resistance to technology change. Timely communications, listening to, and fulfilling the needs of, employees, and providing adequate training courses in order to increase job performance are all necessary strategies that have helped companies to mitigate resistance to the technology and have shown a positive outcome in all the public sector companies in UAE.

CHAPTER 5

CASE STUDIES' ANALYSIS

5. INTRODUCTION

In the previous chapters of this study the goals and objectives were presented and explained in detail. An analysis of the first two stages of the data collection, including the development of the initial and then the refined framework, has been accomplished. This chapter presents the data analysis of the final stage involving two case studies of UAE companies in order to evaluate the proposed refined framework. The chapter also addresses the notion of validity and its application in qualitative research. The researcher has attempted to establish that validity is not a single, fixed or universal concept, but rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies. The first section of this chapter deals with the definition of validity and briefly reviews other scientists' and authors' works which have considered validity.

5.1 Definition of validity

In order to understand the meanings attached to validity, it is appropriate to review a selection of the range of definitions cited in the works and research of leading authors. A much cited definition of validity is that reported by Hammersley (1987) which stated that "an account is valid or true if it represents accurately those features of the phenomena that it is intended to describe, explain or theorize". Campbell and Fisk, as cited in Hammersley (1987), defined validity as "an agreement between two efforts to measure the same thing with different methods". Johnston and Pennypacker (1980) defined validity as the "degree of approximation of reality". Although in quantitative research validity is related to accuracy, relevance and the reliability of measurement, in qualitative research validity is intended to seek not to measure but rather to understand, represent or explain something, usually some fairly complex social phenomena. In qualitative research an account is said to be valid if "it represents accurately those features of the phenomena that is intended to describe, explain or theorize" as reported by Hammersly (1987). One of the usual features of validity is its combination with reliability. The notion of accuracy, more commonly attributed to validity, appears to be associated with

reliability also. It is evident that the means by which validity is to be achieved are different for each methodology.

5.2 Case Study Methodology

The proposed framework of this study was tested through multiple case studies of two UAE companies adopting new technologies. The methodology adopted followed the recommendation of Yin (1994) and had four stages:

- (1) Designing the case study.
- (2) Conducting the case study.
- (3) Analyzing the case study and evidence.
- (4) Developing the conclusion, recommendation and implications.

5.3 Case Study Definitions

Before looking at the steps in the process of conducting case study tests, it is appropriate to review the definitions of what case study research actually is. Hartley (2004) stated that case study research "consists of a detailed investigation, often with data collected over a period of time, of phenomena, within their context" with the aim being to provide an analysis of the context and processes which illuminate the theoretical issues being studied. Yin (2003) offered a more detailed and technical definition of case studies. A case study is an empirical inquiry that:

- Investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomena and context are not evident.
- The case study inquiry:
 - Copes with a technically distinctive situation in which there will be many more variables of interest than data points.
 - Relies on multiple sources of evidence with data needing coverage in a triangulating fusion.

- Benefits from the prior development of theoretical propositions to guide data collection and analysis.

Given the Yin definition, it might be important to note that a case study is not a method but a research strategy. As a strategy, case study comprises an all-encompassing method which means that a number of methods may be used - either qualitative or quantitative or both.

5.4 Design of the Case Study

Hartley (2004) reported that the "research design is the argument for the logical steps which will be taken to link the research question(s) and issues to data collection, analysis and interpretation in a coherent way". In this research the case studies' design followed the Yin (2003) proposal by using the following order in the design:

- A study's questions.
- Its propositions.
- Its units of analysis.
- The logical linking of the data to the propositions.
- The criteria for interpreting the findings.

5.5 Data Collection

According to Yin (2003) there are six possible sources of evidence for case study: documents, archival records, interviews, direct observation, participant-observation, and physical artifacts. (The data for the two UAE case study companies were collected using semi-structured interviews.) Table (26) shows the types of evidence and their strengths and weaknesses.

Table 26: Types of Evidence (Yin 2003)

| Source of evidence | Strengths | Weaknesses |
|---------------------------|---|--|
| Documentation | <ul style="list-style-type: none"> *stable - repeated review * Unobtrusive - exists prior to the case study * Provide exact names, etc. * Broad coverage - extended time span | <ul style="list-style-type: none"> * Retrievability difficult. * Biased selectivity * Reporting bias - reflects author bias * Access - may be blocked |
| Archival Records | <ul style="list-style-type: none"> * Same as above * Precise and quantitative | <ul style="list-style-type: none"> * Same as above * Privacy might inhibit access |
| Interviews | <ul style="list-style-type: none"> * Targeted – focuses on case study topic *Insightful – provides perceived causal inferences | <ul style="list-style-type: none"> * Bias due to poor questions * Response bias * Incomplete recollection * Reflexivity - interviewee expresses what interviewer wants to hear |
| Direct observation | <ul style="list-style-type: none"> * Reality – covers events in real time * Contextual – covers events’ context | <ul style="list-style-type: none"> * Time-consuming * Selectivity - might miss facts *Reflexivity – observers’ presence might cause change * Cost - observers need time |
| Participant observation | <ul style="list-style-type: none"> * Same as above *Insightful into interpersonal behaviour | <ul style="list-style-type: none"> * Same as above * Bias due to investigator's actions |
| Physical artifacts | <ul style="list-style-type: none"> * Insightful into cultural features * Insightful into technical operations | <ul style="list-style-type: none"> * Selectivity * Availability |

Documents can be letters, memoranda, agendas, administrative documents, or any document that is germane to the investigation. In the interest of triangulation of evidence, documents serve to corroborate the evidence from other sources. Documents can lead to false leads in the hands of inexperienced researchers, which has been one criticism of case study research. Archival documents can be service records, organizational records,

list of names, survey data and other such records. The investigator has to be careful in evaluating the accuracy of the archival documents and even if the records are quantitative, they might still not be accurate. Interviews are one of the most important sources of case study information. There are several forms of interviews that are possible: open-ended, focused and structured or via a survey.

Direct observation occurs when a field visit is conducted during the case study. This technique is useful for providing additional information about the topic being studied and its reliability is enhanced when more than one observer is involved in the task. Participant-observation makes the researcher into an active participant in the events being studied. This technique provides some unusual opportunities for collecting data, but can face some major problems. Physical artifacts can be tools, instruments or other physical evidence that may be collected during the study as part of a field visit. Not all these sources are relevant for all case studies; the researcher should be capable of dealing with all of them, should it be necessary, but each case will present different opportunities for data collection. In this research, the researcher collected the data using semi-structured interviews, as well as data from other sources of evidence as discussed above.

The researcher tested and validated the proposed framework through the multiple case studies of two UAE companies by interviewing high and middle level managers who were highly experienced, well-educated and knowledgeable about information technology and its use in their companies and also by looking into the companies' documents and archival records, and their vision, mission and strategy. A reminder notice reminding them of the forthcoming interview was sent to all the selected participants one week after the original contact so as to encourage participation. This action increased the response rate. The interviews involved a variety of questions which focused on assessing the resistance factors for new technology and on finding available evidence to support the validity of the refined framework. However, not all questions were absolute; some depended on the participant's answer. Firstly, the researcher assessed each factor according to the participant's answer and then the participant was asked for evidence to support their opinion.

Table 27: Source of evidence

| Level (3) | Level (2) | Level (1) | Factors |
|---|--|--|---|
| Study of the company vision, mission and strategies to see which of the key drivers is more important than the other. | No evidence to show the key drivers in the company documents | Interviewing high and middle level managers. Which of the two key drivers for technical change in the company is the most important or which comes first? | Key Drivers for technical change. 1-Corporate evolution 2- Technological development |
| Level (3) | Level (2) | Level (1) | Factors |
| Study of the company vision, mission and strategies and policies for the ways adopted to overcome resistance to change. | Investigating the companies' documents, records, etc. to find information on their system of rewards, their training programmes and the means of communicate between the top management and the employees. | Interviewing high and middle level managers which factors are mostly adopted by the company for overcoming the resistance of employees to technological change. | Factors which are used to overcome resistance to technological change. 1- Rewarding the employees. 2- Training programmes. 3- Communication between management and employees. |
| Level (3) | Level (2) | Level (1) | Factors |
| Study of the company vision, mission and strategies for job performance | Investigating, using the companies' documents, records, etc. for evidence of these factors as the | Asking the participants (managers) which of these factors contribute most to job performance | Factors which contribute to job performance effectiveness. |

| effectiveness and the factors stated to be adopted to attain this objective. | main contributory factors contributing to employees' job performance resulting from the adoption of new technologies. | effectiveness as a result of the adoption of new technologies. | 1- Improvement of work quality. 2- Accomplishing work tasks quickly 3- Eliminating errors 4- control of work 5- Improvement of work performance 6- Enhance effectiveness on job. |
|--|--|--|---|
| Level (3) | Level (2) | Level (1) | Factors |
| Study the vision, mission and strategies for reasons for resistance to technological change by top management. | Documents, records, letters etc. Investigating the documents and records for signs of resistance to technology by the management. | Interviewing high and middle level managers about these two reasons for management's resistance to technological adoption. | Reasons for management's resistance to change. 1- High cost of change. 2- Fear of loss of power and control of work in the company. |
| Level (3) | Level (2) | Level (1) | Factors |
| Study the company vision, mission, and strategies for the expression of values relating to conflict solutions. | Investigating the two factors relating to conflict in the companies' documents and records. | Interview Asking high and middle level managers about conflict factors (lack of appreciation and need for security) between the employees' expectations and the company's values. | Cultural factors Conflict between employees' expectations and company's values as related to technological change. Psychological factors 1- Lack of appreciation. 2- Need for security. |

| | | | |
|--|--|--|---|
| Look in the companies' strategies for the demographic factors (age, experience) being expressed as factors important in technology adoption. | Investigating the impact of the demographic factors (age, experience) on technology adoption by the company. | Interviewing managers concerning the demographic factors (age, experience) of employees as related to their opinions about technological adoption. | Demographic factors 1-Age 2- Experience Behavioural factors 1- Job satisfaction |
|--|--|--|---|

5.6 Company A: Case Study

Company Background

Table 28: Company A's Profile

| Company A's Profile | |
|---------------------|------------------------|
| Establishment Year | 1999 |
| Classification | Government corporation |
| Speciality | Services company |
| Number of Employees | 1,932 |
| Location | AL AIN |

Table 29: Key drivers for technological change

| Level (3) | Level (2) | Level (1) | Factors |
|---|--|--|--|
| Study company vision, mission and strategies to see which of the key drivers is more important than the others. | Document, records, letters, to investigate/review the company's two key drivers. | Interviewing high and middle level of managers. Which of the two key drivers for technical change in the company is the most important or which comes first? | Key Drivers for technological change . 1-Corporate Evolution 2- Technological Development |

Most of the high and middle level managers who were interviewed thought that corporate evolution as a driver toward technological change comes first and they considered it the most important, i.e. this allowed the employment of qualified and competent staff who are able to utilize and manage sophisticated technologies. The results revealed that corporate evaluation is considered as the most important key driver in the adoption of new technology. It is most likely that corporate evaluation is classed as the most important driver because it has a key role to play in achieving a company's vision,

mission and strategies and therefore it is more important than the other key driver as the company concentrates on its continuous improvement and development.

Table 30: Factors that are used to overcome resistance to technological change

| Level (3) | Level (2) | Level (1) | Factors |
|---|--|---|---|
| Study the company vision, mission and strategies and policies for ways that are adopted to overcome resistance to change. | Investigating the company's documents, records, etc. for information on their rewarding system, training programs and for the means of communication between top management and employees. | Interviewing high and middle level managers to indicate which of the factors are deemed the most important by the company for overcoming the resistance of employees to technological change. | <p>Factors that are used to overcome resistance to technological change.</p> <p>1- Rewarding the employees.</p> <p>2- Training programmes.</p> <p>3- Communication between management and employees.</p> |

The interviewed high and middle level managers thought that the most important factors adopted by the company for overcoming the resistance of employees to technological change was communication between the management and employees in addition to offering training programmes for the employees.

Upon investigating the company's documents, records, etc. it was found that the top management lacks clear communication channels with the employees in order to assist in overcoming the resistance to technological change. Furthermore, there was no evidence of systematic training for employees to meet technological needs; this factor may contribute to an increase in the level of resistance to technology.

The vision, mission and strategies of the company included the aim to be amongst the top quartile performers worldwide and to ensure a sustainable supply of IT services, thus the

company has adopted a reward scheme for employees and had a policy of providing adequate training to them as well as a policy of convincing them of the importance of continuous improvement and change in the field of technology.

The research shows that the interviews with the high and middle level managers revealed that the most important factors that management use to overcome the resistance of employees to technological change are: rewarding employees, communication and sharing opinions with employees, and offering training programmes. These three factors are the most important within management strategy and policy to overcome resistance to change.

Table 31: Factors which contribute to job performance effectiveness

| Level (3) | Level (2) | Level (1) | Factors |
|---|---|--|--|
| Study the company's vision, mission and strategies for statements on job performance effectiveness and the factors that should be adopted to attain this objective. | Investigating using the company's documents, records, etc. for evidence of these factors as the main factors that impact on employees' job performance resulting from the adoption of new technologies. | Asking the participants (Managers) which of these factors contribute most to job performance effectiveness as a result of the adoption of new technologies . | <p>Factors which contribute to job performance effectiveness.</p> <p>1- Improvement in work quality.</p> <p>2- Accomplishing work tasks quickly.</p> <p>3- Eliminating errors.</p> <p>4- control of work</p> <p>5- Improvement in work performance.</p> <p>6- Enhance effectiveness in job.</p> |

The managers that were interviewed believed that, in the adoption of new technologies, the factors that contribute most to job performance effectiveness are accomplishing work tasks quickly, improvement of work quality , eliminating errors, enhancement of work performance, etc. After investigating and reviewing the company's documents and

records it was found that the adoption of new technologies in different disciplines contributed to job performance effectiveness by fulfilling and realizing the above-mentioned factors and objectives. The interviews with the high and middle level managers in the case study company revealed that the factors that contribute most to employees' job performance are improvement of the work environment quality, the accomplishment of work tasks quickly and at the required time, limiting work errors by more concentration on tasks .

Table 32: Management factors

| Level (3) | Level (2) | Level (1) | Management factors |
|--|--|--|--|
| Study the vision, mission and strategies for reasons for resistance to technological change by the top management. | Documents, records, letters etc. Investigating the documents and records for signs of resistance by the management. | Interviewing the high and middle level managers about the reasons for management's resistance to the adoption of technology. | Reasons for management's resistance to change. 1- High cost of change. 2- Fear of loss of power and control of work in the company. 3-Requires extra effort to learn and relearn. 4-Fear of overload. |

The high and middle level managers interviewed were of the opinion that the two main reasons for management's resistance to technological adoption, if any, might be the high cost of change and the extra effort required to learn and relearn. The case study results indicate that the interviews revealed that the reasons that cause management to resist change are the high cost of adoption of new technology, the fear top and middle level managers have of losing their power and control over work, and the extra overload that new technology may require them to put in, in order to cope with the change.

Table 33: Human factors

| Level (3) | Level (2) | Level (1) | Human factors |
|---|--|--|---|
| Study the company's vision, mission, and strategies for their expectation of values relating to conflict solution. | Investigating for the two factors concerning conflict in the company's documents and records. | Interview Asking the high and middle level managers about the conflict factors (lack of appreciation and the need for security) | Cultural factors: - Conflict between employee's expectations and the company's values with relation to technological change. Psychological factors: - Lack of appreciation. -Need for security. |
| Look in the company's strategies for information on the demographic factors (age, experience) as factors important in technology adoption | Investigate for the impact of demographic factors (age, experience) on technology adoption by company | Interviewing the managers concerning the demographic factors (age, experience) of employees as related to their opinions about technological adoption. | Demographic factors: -Age -Experience Behavioural factors: -Job satisfaction |

The high and middle level managers thought that the conflict factors (e.g lack of appreciation and the need for security that was possibly felt by a few employees) and the demographic factors (age and experience) of the employees have some impact on their opinion about the technological adoption. After investigating the company's documents and records no evidence for the two factors of conflict were observed within the documentation. There might be some impact by demographic factors (age and experience) on technology adoption by employees within the company.

Upon reviewing the company's vision, mission and strategy to look for their expression of values as related to conflict solutions, the researcher found that the values adopted by the company states commitment to its employees by promoting open and honest communication, and by providing a safe and hygienic work environment for all employees, etc. By looking at the company's strategies with regard to demographic factors (age and experience) the researcher found that the company recognizes these factors as important when considering the adoption of technology, and got the employees involved in making decisions in such sectors. Additionally, the company paid for adequate training and incentives.

The interviews with the high and middle level managers in case study (A) showed that cultural factors such as the company's values as related to the introduction of new technology, and its effect on relationships and on the conflict between employees' expectations and the actual outcomes that technology brings need to be considered in adoption of new technology. In addition, the need to for job security and satisfaction, and demographic factors such as age and experience, all contribute and need to be taken into consideration when new technology is to be adapted.

5.7 Company B Case Study

Company Background

Table 34: Company B's Profile

| Company B's Profile | |
|----------------------------|------------------|
| Establishment Year | 2004 |
| Classification | First grade |
| Specialty | Services company |
| Number of Employees | 240 |
| Location | AL AIN |

Table 35: Key drivers for technological change

| Level (3) | Level (2) | Level (1) | Factors |
|---|---|--|---|
| Study the company's vision, mission and strategies to see which of the key drivers is more important than the others. | Document, records, letters, in order to investigate/review the company's two key drivers. | Interviewing, high and middle level managers. Which of the two key drivers for the technical change in the company is the most important or which comes first? | Key Drivers for technological change. 1-Corporate Evolution 2- Technological Development |

After the researcher had undertaken comprehensive and detailed interviews with upper and middle management in the organization, it was clear that the management prioritized the need for corporate evaluation by inducting personnel capable of adopting technological innovations and capable of implementing them. Another recommendation that came out was to educate/update current administration staff through conducting seminars, workshops, etc. The managers stated that, “after acquiring proper knowledge/know-how in the management of new technology, the organization could head for sustainable technological development.”

The consulted company's previous records and procedures ,showed that the company recognized the importance of modifying their systems, plans of action, and strategies by recruiting appropriate people and adopting changes brought in with them and enhancing work efficiency through the implementation of innovation. It was recorded in this documentation that corporate evolution is the most important factor in driving towards the adoption of new technology. Achieving technological change was an aim in vision of

the mission of the company (when reviewed by the researcher and the way to reach these goal was described as being through the proper approach of people, via their interest and by enhancing their knowledge and familiarity with information. It was evident that corporate evaluation is very important in this company in order to attain technological development. It was concluded from the interviews that the main key driver for technological change is corporate evaluation followed by technological development.

Table 36: Factors that are used to overcome resistance to technological change

| Level (3) | Level (2) | Level (1) | Factors |
|---|---|---|---|
| Study the company's vision, mission and strategies and policies for the ways that are adopted to overcome resistance to change. | Investigating the company's, documents, records, etc. for information on their rewarding system, training programs and means of communication between top management and employees. | Interviewing high and middle level managers to indicate which of the factors are deemed the most important by the company for overcoming the resistance of employees to technological change. | <p>Factors that are used to overcome resistance to technological change.</p> <p>1- Rewarding the employees.</p> <p>2- Training programs.</p> <p>3- Communication between management and employees.</p> |

According to the interviews undertaken with high and middle level managers the most important factor to overcome resistance to technological change was conducting training programmes, followed by improvement in communication between management and employees. Managers were of the view that training programmes are useful in transmitting information, updating and helping in alleviating barriers (communication) between management and employees hence creating a more friendly environment and thus encouraging of employees to be more receptive to innovation. The researcher

concluded, from the interviews, that the use of rewards, training employees and improved communication respectively, are factors used by the company's management to overcome employees' resistance to change.

Table 37: Factors contributing to job performance effectiveness

| Level (3) | Level (2) | Level (1) | Factors |
|---|--|---|--|
| Study the company's vision, mission and strategies for statements on? job performance effectiveness and the factors that should? be adopted to attain this objective. | Investigating using the company's documents, records, etc. for evidence of? these factors the main factors that impact on employees'? job performance resulting from the adoption of new technologies. | Asking the participants (Managers) which of these factors contribute most to job performance effectiveness as a result of the adoption of new technologies. | Factors contributing to job performance effectiveness 1- Improvement in work quality. 2- Accomplishing work tasks quickly. 3- Eliminating errors. 4- control of work 5- Improvement in work performance. 6- Enhance effectiveness on job. |

According to the participants, eliminating errors, improvement in work performance and improvement in work quality contribute the most to job performance effectiveness as a result of adoption of new technologies. From the analysis of the data provided in the interviews it can be concluded that the factors which contribute to employees' job performance and effectiveness are the quality of the work environment, accomplishing work tasks quickly and in the required time, undertaking work efficiently and avoiding work errors, and control of work .

Table 38: Management factors

| Level (3) | Level (2) | Level (1) | Management factors |
|--|---|--|--|
| Study the vision, mission and strategies for reasons for resistance to technological change by the top management. | Documents, records, letters, etc. Investigating the documents and records for signs of resistance by the management. | Interviewing the high and middle level managers about reasons for management's resistance to the adoption of technology. | Reasons for management's resistance to change. 1- High cost of change. 2- Fear of loss of power and control of work in the company. 3-Requires extra effort to learn and relearn. 4-Fear of overload. |

The reasons for management resistance to technological adoption turned out to be the high cost of change and the extra effort required to learn (as reported by the high and middle manager participants). After a detailed study of the reasons for resistance to technological change by top management, it was concluded that reasons were:

- Extra liability for the company to bear in terms of the cost of change such as purchases, proper training, post training evaluations, etc.
- Divergence from routine work and thus extra effort required to manage, implement and execute, and monitor the innovations.
- Conducting training sessions in order to share information and experiences.

From the research interviews it can be concluded that the factors that cause management to resist change are the high cost of change, fear of the unknown (e.g. loss of power and status in the company), and the need for the extra effort to learn and fear of work overload.

Table 39: Human factors

| Level (3) | Level (2) | Level (1) | Human factors |
|--|--|--|--|
| Study the company's vision, mission and strategies for their expectation of values relating to conflict solution. | Investigating for the two factors concerning conflict in the company's documents and records. | Interview Asking the high and middle level managers about the conflict factors (lack of appreciation and the need for security). | Cultural factors: - Conflict between employee's expectation and company's values with relation to technological change. Psychological factors: - Lack of appreciation. -Need for security. |
| Look in the companies strategies for information on the demographic factors (age, experience) as factors important in technology adoption. | Investigate for impact of the demographic factors (age, experience) on technology adoption by the company. | Interviewing the managers concerning the demographic factors (age, experience) of employees as related to their opinions about technological adoption. | Demographic factors: -Age -Experience Behavioural factors: -Job satisfaction |

The analyses of the interviews reveal that

- a) Psychological factors: technological change in companies saves time and resources. Although technological change is positive step for a company/company's administration it can raise concerns for the employees. In most cases where technological innovation occurs the company is subject to downsizing which can cause fears among employees and these fears persist in organizations all around the globe. Job insecurity was described as a leading factor as employees' fear to be discharged after the adoption of new technology.

- b) Demographic factors: according to managers that were interviewed, age and experience both tend to be factors involved. Old age can impede the making of extra effort whereas those with much past experience may need a lot of time to change from one pattern of work to another.
- c) Job satisfaction reduces the amount of conflict i.e. it is inversely proportional to conflict.

No details of the abovementioned factors were found in the records of the company when investigated. After studying the companies' vision, mission and strategies for their expectation of values, assurance regarding job security, benefits developed a favourable environment for work the researcher found out that the company recognized and acknowledged the importance of new technology in enhancing these factors.

Also to conduct training and educate the employees as mentioned in companies here. Vision and mission helped the companies in adopting technology without incurring resistance. The proposed framework includes three groups of factors that affect resistance to change and shows? How these factors, if satisfied, can lead to acceptance of change. The interviews revealed that psychological factors (such as a lack of appreciation of change and the need for job security) have an impact on the resistance to change. The researcher concluded that demographic factors such as gender, age and the experience of the employees have an impact on the adoption of change and on resistance to change.

CHAPTER 6

DISCUSSION

6. INTRODUCTION

This chapter discusses the research findings' results obtained from the qualitative and quantitative (questionnaires and semi-structured interviews) data collection and the analysis methods. This study particularly focuses on HRD employees in Abu Dhabi public sector companies. The analysis and data collection involved the analysis of major aspects of technology change and the attitudes of employees when change is forthcoming i.e., the degree of resistance to change. This enabled the researcher to identify and explain certain effects of change and impact on employees' performance.

The analysis and discussions helped the researcher to answer the research questions and to achieve the research aims and objectives. As per the research design, the research methods used for the data analysis were divided into 2 stages (stage 1 and stage 2). Thus this chapter discusses the findings of each stage in order.

In stage 1 a framework was developed to identify the resistance factors that affect employees in the UAE public sector through a questionnaire and interviews that included levels to measure the effectiveness of change technology. The analysis was based on the results of semi-structured interviews and the self-administered questionnaires. The analysis was undertaken based on the respondents' demographic factors and reasons for resistance to technology change on tests of reliability and validity, on a description of statistical method and on Anova analysis methods through SPSS. The description statistical method was used for each question presented in the questionnaire including the personal information of participants and the reasons for resistance. Using the questionnaire the researcher was able to identify the various factors that lead to resistance to technology in employees in UAE public sector companies. Furthermore, the analysis of the collected data identified that there is a possible relationship between reasons for resistance and the factors that affect resistance. In addition, semi-structured interviews with middle managers helped the researcher to gather a wide range of information that could support the gathered data and to understand the various reasons for resistance and the factors affecting resistance. At this stage the researcher was able to develop a framework after the reasons and the factors affecting resistance were identified.

Next at stage 2 a refined framework was developed as it was necessary to refine the initial framework (the framework developed at stage 1) to make it more practical for the UAE public sector. The semi-structured interviews provided data that helped to refine the suggested framework

6.1 Aim of the research

The aim of this research is to develop a framework to identify the factor to assess employee resistance to technological change within UAE public companies and to use the framework to identify opportunities for improvement in job performance.

6.2 Research Objectives

- To identify the factors which call for technological change in the UAE.
- To identify the factors that lead to technological resistance in the UAE.
- To identify the factors likely to lead to an improvement in job performance.
- To develop a conceptual framework for assessing employee resistance to technological change and to identify opportunities for improvement in order to achieve better job performance.
- To validate the framework using case studies in the UAE.
- To propose valid recommendations for overcoming employee resistance to technological change and for improving job performance in the UAE.

6.3 Mix of Quantitative and Qualitative Findings

This research used both qualitative and quantitative methods of research for its data collection and analysis methods so as to achieve the research objectives. This enabled the researcher to answer the research questions. As a part of the quantitative data collection method this research used a survey questionnaire and for qualitative data collection method semi-structured interviews were conducted. The research design included two major steps. The first step included the survey questionnaire that helped in identifying the key factors that lead to employee resistance to technology change in UAE public sector companies. Next semi-structured interviews, included in the first stage, helped in

identifying the questionnaire results and in understanding the factors that lead to employee resistance to technology change and led to the development of the initial framework. The second stage of the research design included the second phase of semi-structured interviews that helped in refining the suggested framework.

6.4 Stage 1: Framework Development Findings

The purpose of stage 1 was to develop an initial framework that could help the researcher to assess the factors that lead to employee resistance to technology change. This framework development included two steps. Firstly, the researcher identified factors that lead to employee resistance to technology change in UAE public sector companies using a survey questionnaire. Next, the researcher conducted semi-structured interviews which helped the researcher to verify the results obtained in the stage 1 and, based on the interview results, a new framework was developed.

6.4.1 Questionnaire Findings

As a part of the field study the researcher collected data using 2 types of questionnaires that were designed for this research. Firstly, the researcher developed a self-administered interview questionnaire and three middle managers from the selected public sector companies in UAE were interviewed. Interview questions focused on understanding the impact of various factors that lead to employee resistance to technology change. Next the researcher developed a survey questionnaire (referred to as self-administered questionnaire) which was completed by the respondents. The survey questionnaire was designed to measure the factors that affect employee resistance to technology change in UAE public sector companies. The survey questionnaire included a total of 8 questions relating to the respondents' demographics and personal information. Next came 10 questions with sub-divided questions relating to the drivers of technology change, the reasons for employee resistance to technology change, the reasons for management resistance to technology change, and the necessary strategies to mitigate the resistance to technology change. This helped the researcher to increase the data reliability.

6.4.2 Descriptive Statistical Findings of Respondents Characteristics

Statistical analysis of research commonly displays the results with tables and pie charts that are useful for identifying the percentages that support the statements given in an questionnaire.

The first question concerned **demographic information** and showed the distribution of the sample according to sector. It could be seen that participants from company A represented 29%, company B represented 30%, company C represented 21% and, finally, company D represented 20% of the participants in the sample. This shows that the surveyed samples were pretty evenly distributed among all the participating companies. The second question was about the **respondents' gender**. The results show that females represented 48.8% of the total sample population while males represented 51.3%. This is an indication that UAE public industry sector is no longer a male dominated sector and that women are playing a significant role in the development of the country. Cultural dimensions that deal with the dynamics of the resistance to change for power distance are expressed in a combination that includes deeper knowledge with a changing environment and greater freedom to express views. Further the researchers stated that *power distance expresses the acceptance of the less powerful members of organisations that the power in the organisation is unequally distributed through deeper knowledge and greater freedom.*

The third question related to the **respondents' age**. The results indicate that 11.9% of the participants were aged 25 years or less, 35.6% were in the age group between 25-30 years, 31.3% in the age group between 30-35 years and 19.4% in the age group between 35-40 years and only 2% of the participants were over 40 years old forming the smallest group. There was then a fairly good distribution of the participants among the various age groups. The results indicate that the highest participation was in the age group between 25 – 30 years and then next highest age group to participate was found to be between 30 – 35 years. This indicates that employees who participated in the research survey have less experience and but are aware of the latest technologies and can adapt to changing technological needs. One of the reasons behind this could be that the UAE public sector is targeting young employees particularly as they have knowledge of the latest cutting

edge technologies and could have less resistance towards technology change in organizations. The fourth question asked about the **respondents' education**. The results indicate that the majority of the participants have a Bachelor's degree which accounted for 53.8% followed by 25% with a diploma. Nearly 12% have a Masters or a PhD degree. A small proportion of the participants (9.4%) have a higher diploma. This shows that most of the employees are graduates with a Bachelor's degree and also provides an idea of the standard of educated employees in the public sector companies in the UAE. The fifth question was about the **respondents' work experience**. The results indicated that the majority of the participants had between 1 to <5 years of experience; these accounted for 36.3%. The two second largest groups had the same percentage (25.6%) and were those with 5 to <10 years' experience and those with >10years of experience. The smallest group constituted those with experience of less than one year (12.5%). The results show that the majority of the respondents had a useful amount of experience. This is significant in terms of the participants' perceptions on the introduction of new technology as well as their perceptions on the performance in the companies and departments as affected by the introduction of new technology. Finally the last question was about the **respondents' position**. The results indicated that management employees represented 17.9%, accounting employees represented 21.7%, IT employees represented 15.6 %, technicians represented 12.9 %, engineering staff represented 20% and other positions represented 11.9% of the total sample. From the results it can be said that the majority of the employees were in accounting and engineering positions. It can be said that accounting and engineering staff are more likely to use various IT systems in an organization.

According to Lombard and Crafford (2003), demographic factors such as age, gender and education levels have an influence on the resistance to change. There is a relationship between demographic factors and resistance to change. From the demographic analysis it is understood that employees who are aged 50 years and above have a significant impact on the resistance to change. It is true that senior level managers generally will not accept any change and want to be stable in their current position. This means that older a person is, the more likely it is that they will resist change. Furthermore, Lombard and Crafford

stated that an employee who has higher educational qualifications tends to resist change because they do not want to change their status and position in the company. If any change takes place they think that it is going to have a negative influence on their status and they feel that their current position may be downgraded.

The next section of the research questionnaire used measurements for a number of identified variables using Cronbach's Alpha reliability coefficient (**hereafter referred to as CARC**) for the questions using the Likert scale: Strongly disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly agree = 5. The descriptive statistical method was used for each question presented in the questionnaire representing the respondents' level of opinions on the drivers of resistance. The researcher identified different variables using Cronbach's Alpha. The initial variable identified was **drivers to technology change** which showed a CARC of 0.647 and 0.804 by Validity. The next variable identified was **reasons for employees' resistance to technological change** which showed a CARC of 0.753 and 0.867 by Validity. The next variable identified was **reasons for management's resistance to technological change** which showed a CARC of 0.719 and 0.847 by Validity. The next variable identified was **necessary strategies to mitigate the resistance to the technological change** which showed a CARC of 0.85 and 0.921 by Validity and, finally, the last variable identified was **indicators of the technological change** which showed a CARC of 0.842 and 0.917 by Validity. From the results the researcher understood that Cronbach's Alpha test suggested that all the factors have a high internal consistency (reliability) which is approximately 0.92 and a reliability coefficient of 0.70 or more is considered acceptable in most social science research studies.

6.4.3 Discussion of each Factor of the Identified Variables

Starting with the **drivers of technology change** there are two identical variables (*introduction of new technology in terms of new equipment or new programmes*) identified by the researcher that showed a 15.11% of coefficient of variation (**hereafter referred to as CoV**) and the two non-identical variables (*are the reasons for technological change visible to the employees*) identified showed a 21.98% CoV.

Furthermore, on average, the value of the weighted mean for the drivers of technological change is identified as 4.14, with a 15.92% CoV. Therefore, it can be said that there is strong agreement from employees on the drivers to technological change. With regard to the next variable, the **important key driver of the technological change of the company** there were four factors identified. Respondents were of the view that *ccorporate evolution* has a major impact as it represented 50.6%, and thus could be considered as one of the key major drivers of technology change in UAE public sector companies. Next highest agreement was on the *technological developments* which represented 33.8%. Respondents did not agree that *globalization* could have much impact or that it could drive technology change as it was represented as 8.8%. It is the same scenario with the *privatization* factor that represented 5.6%. Thus the researcher has developed a clear understanding that corporate evolution has the highest impact on UAE public sector companies in terms of a driver for technology change. With regard to the factor was there? **Any resistance from the employees to technological change when the company introduced new technology**, 40.6% respondents agreed with the statement, but 39.4 % of respondents did not agree with this statement; a further 20% of respondents were neutral as to their opinion. Thus it is evident that there was an equal percentage who believe employees resist change and who believe that employees accept change.

For the next variable **reasons for employees' resistance to technological change** the researcher identified two factors (from the chosen factors that lead to employee resistance to technology change) that affected this variable. The first factor *employees understanding on why technological change is happening and why it is necessary* represented 17.61% of CoV the second factor *employees desire to keep existing positions in the company* represented 22.82% of CoV; the third factor *employees' comfortableness with the current technology and the routine procedures* represented 22.96% of CoV; the fourth factor *employees have a fear of the uncertain outcomes of new technological change* represented 24.59% of CoV and, finally, the fifth factor was *conflict between the employees' expectations for their jobs and the goals of company within the new technological change* and represented 25.14% of CoV. On the other hand, the researcher

identified five non-identical variables: the first factor *employees rewarded when technological change is successfully implemented* represented 36.05% of CoV; the second factor *long periods of planning before the technological change is delivered* represented 34.22% of CoV; the third factor *employees lack the necessary information, skills and adequate training to accept new technological change* represented 33.81% of CoV; the fourth factor *the change agent lacked the required skills to adopt new technological change in company* represented 32.05% of CoV and, finally, the fifth factor *employees resisting technological change shows an impact on their job performance and resistance to technological change impacts on the employee's loyalty* represented 29.68% of CoV. Furthermore, a COV of 59.4.4% was prompted for the statement **no such resistance identified in the management when the company introduces a new technology**. This indicates that management is not adverse to the introduction of new technology. Thus the value of the total weighted mean for the reasons for employees' resistance to technological change is identified as 3.57, with a CoV of 12.69% which indicates that there is a high level of agreement with the given factors in UAE public sector companies.

When looking at the variable **reasons for management's resistance to technological change** the three most identical variables were identified. The identical variables here were the three factors *managers' priority is to attend to other businesses rather than pay attention to technological change* represented a CoV of 31.06 %, *management in the company have a fear of losing control and power* represented a CoV of 31.53% and, finally, *the management team work extra time to learn more about new technology and manage the technological change successfully* represented a CoV of 31.57%. Next the researcher identified the three most non-identical variables. These were identified as *management team involve employees in designing the technological change* which represented a CoV of 35.32%; *management team have a fear of losing their current job title in the company* represented 34.14% of CoV and *the high cost of change is the primary reason for management to resist change* represented a CoV of 33.62% respectively. Furthermore, the researcher identified that the value of the total weighted mean for the reasons for management's resistance to technological change is 3.30, with a

CoV of 19.83% which indicates that there is a strong agreement that these factors lead to management's resistance to technological change. Furthermore, the researcher identified that there is a high level of agreement (which was indicated as 47.5% with a frequency of 76) with the statement **are there any suitable and practical procedures to overcome resistance to technological**. Therefore, this is a positive indication that UAE public sector companies are taking appropriate steps to overcome resistance to technology change.

When looking at the **necessary strategies to mitigate resistance to technological change** the researcher identified the two most identical variables. The first was *communication about the change was timely and relevant* which represented a CoV of 24.02 %; next was *empowering employees in the change process and listening to them to fulfil their needs* which represented a CoV of 29.39 %. Furthermore, the researcher also identified the three most non-identical variables as *effective rewarding policy to pay for performance* which represented a CoV of 41.14%; next *leaders in the company meet with employees who encounter difficulties in the change process* represented 31.97% and, finally, *provide adequate training courses to increase job performance* represented 30.71% of CoV. Furthermore, the researcher identified that the value of the total weighted mean for the necessary strategies to mitigate resistance to technological change is 3.5304, with a CoV of 24.78% which indicates that management had taken the necessary strategies to mitigate resistance to technological change. Furthermore, the researcher identified that there is a high level of agreement (which was indicated as 78.8% with a frequency of 126) with the statement **technological change influenced the company positively**, which shows that technology change has positively impacted on all the public sector companies in UAE.

In relation to the variable **indicators job performance of technological change** the researcher has identified that there are three most identical variables affecting this factor. The first variable was *improve the quality of work* which had a CoV of 13.03%; next *work tasks accomplished quickly* represented 17.76% of CoV and, finally, the variable *technological change increases the efficiency and productivity of the employees* represented 19.13% of CoV. Furthermore, the researcher also identified the three most

non-identical variables that scored the highest levels of agreement. Considering the strategies to mitigate resistance to technology change the first non-identical variable identified was *increase in job performance* which represented a CoV of 23.02%; the second non- identical variable identified by researcher was *controls the work and process more efficiently* which represented a CoV of 19.89% and the third non-identical variable identified by the researcher was *technological change reduces the total errors* which represented a CoV of 19.37%. Furthermore, the researcher identified that the value of the total weighted mean for the necessary strategies to mitigate the resistance to the technological change was 4.1500, with a CoV of 13.03 %; thus it can be said that there is UAE public sector companies are undertaking the necessary strategies to mitigate resistance to technological change which is a good sign and these strategies should help in reducing or overcoming resistance to technology change from employees as well as management.

From the above discussion, it can be concluded that there is strong agreement from employees on the drivers to technological change. When considering the most important key driver to technological change within a company it can be seen that ccorporate evolution is considered as the major driver to technology change in UAE public sector companies. Furthermore, it is evident that factors such as the change agent lacking the required skills to adopt the new technological changes and lacking the necessary information, skills and adequate training lead to employee resistance to technological change when a company introduces new technology. No such resistance was identified in the management when a company introduces new technology which indicates that management is positive towards the introduction of new technology. Factors such as fear of losing control and power, the high cost of change and fear of losing their current job lead to management's resistance to technological change. Overall there is a positive indication that UAE public sector companies are taking appropriate steps to overcome resistance to technology change. Timely communication, listening and fulfilling the needs of employees, and providing adequate training courses to increase job performance are the necessary strategies that have helped companies to mitigate resistance to technology and have shown a positive impact in all the public sector companies in UAE.

The fact that adoption of new technologies takes place and that companies are able to control the work and process more efficiently shows that UAE public sector companies are undertaking necessary strategies to mitigate resistance to technological change. Furthermore, to gain more insight into the above discussed variables the researcher conducted semi-structured interviews.

6.4.4 ANOVA analysis

For the next step the researcher conducted an ANOVA analysis so as to identify the possible relationship between the reasons of resistance and the factors that affect resistance. From the analysis the researcher identified that there are significant statistical differences between the respondents in each of the four sectors that have been investigated in the field study. Looking at the drivers to technological change the f-test (3.665) has shown a parameter that is significant at less than (0.05), that is it was indicated as 0.014. This indicates that all the companies or chosen sectors have been impacted by technology change and are driven by factors such as privatization, corporate evolution and technology development. Furthermore, considering the reasons for employees' resistance to technological change the f-test (12.636) has shown a parameter to be significantly less than (0.001) that is it was indicated as 0.000. This indicates that the factors identified as reasons for resistance are factual. This also indicates that management has taken appropriate steps to overcome such issues and this has shown a significant level of impact on the employees in their attitude towards technology change. Furthermore, the researcher has identified that there are also differences concerning the reasons for management's resistance to technological change where the f-test shows a value of 6.650 and a significance of 0.000 that is significantly less than (0.001). This indicates that factors such as fear of loss of power and control over work and the need for extra effort to learn and re-learn has a significant impact on managers that leads to resistance to technology change and, in consideration of this, management has taken appropriate steps to overcome such issues. The factors relating to the necessary strategies to mitigate resistance to technology change has shown an f-test value of 0.015 with a significance of 0.010 which is significantly high. This indicates that not all the companies' management have taken appropriate strategies to mitigate technology change.

There is need for more focus on these aspects and the stated factors should be implemented to overcome employee resistance to technology change. Finally, considering the indicators of job performance the f-test has shown 2.526 and a significant level that is less than (0.05). This indicates that management has taken appropriate steps that have helped employees in performing their jobs effectively which ultimately lead to increased job performance.

6.4.5 Fisher's Least Significant Difference (LSD)

Following the one-way analysis of variance (ANOVA) the Fisher's Least Significant Difference (LSD) test was carried out to explore further and to compare the mean of one parameter with the mean of another. This test is only performed when the overall ANOVA analysis resulted in P value less than 0.05 and the null hypothesis $H_0: \mu_A = \mu_B, \mu_A = \mu_C, \mu_A = \mu_D$ has been rejected. Then each mean is compared with another mean using the F-test to test the null hypothesis $H: \mu_A = \mu_B, \mu_B = \mu_C, \mu_D = \mu_C$ as (as shown in table 19 in data analysis part). The results indicate that there was a significant difference between the pair wise means ($\mu_A \neq \mu_B, \mu_B \neq \mu_C, \mu_D \neq \mu_C$) and thus the null hypothesis was rejected.

Based on the results the following can be interpreted with regard to the drivers of technological change. It is seen that the pair-wise means F value between A and B was (0.3125) which was significantly different at 0.05 Level of significance ($\mu_A \neq \mu_B$) and the pair-wise means F value between A and C was (0.46250) which was significantly different at the 0.05 level ($\mu_A \neq \mu_C$). It can be deduced from the results that the factors identified as drivers to technological change (such as privatization, corporate evolution and technology development or advancement) are valid as in the refined framework and the impact of these factors on UAE organizations is different depending on the nature of the organization which also confirms the flexibility of the framework in this respect.

The results of the LSD test of the means of the parameters pertaining to the reasons for employees' resistance to technological change indicate that the F value for the pair wise means A&B, A&C, A&D, B&C and C&D were 0.330, 0.2317, 0.18167, 0.51167 and

0.41333 at a 0.05 level of significance respectively. From the results it can be interpreted that the reasons for employees' resistance to technological change as depicted in the refined framework are valid, can be applied to UAE organizations and can help the organizations' management to formulate their strategies in order to mitigate the effect of employees' resistance to change.

Similarly, the results of the LSD of the means' pairs of the parameters pertaining to management reasons for resistance to technological change can be interpreted as valid and reliable when applied to UAE organizations as depicted in the refined framework. The LSD test for the pairs of parameters pertaining to the formulation of strategies to mitigate employees' resistance to technological change indicate that the F values for the pairs A&B , B&C and C&D were 0.3539 , 0.57085 and 0.47143 and were significantly different at the 0.05 level.

From this result it can be interpreted that the refined framework is valid and reliable in respect to the strategies that help organizations to mitigate the impact of employees on resistance to change. These strategies can be formulated taking into consideration the reasons for resistance as mentioned above. The LSD test result for the parameters pertaining to the indicators of technological change at a 0.05 level of significance indicate that the parameters' pair's means were significantly different and that the refined framework is valid and reliable in this respect.

In conclusion, the LSD tests' results indicate that the refined framework is valid, reliable and flexible and can be applied to UAE organizations at large in respect to new technology adoption and can lead to an improvement in employees' job performance and hence in organizational efficiency.

6.4.6 Interview Findings

The researcher conducted semi-structured interviews with three middle level HR managers. The results obtained from the semi-structured interviews were later compared with the questionnaire results at stages 1 and 2. Initially, at stage 1, a framework was developed to identify the resistance factors that affect employees in the UAE public

sector. Based on the questionnaire results, the researcher developed a framework after identifying the reasons and factors affecting resistance. Further a refined framework was developed as it was important to refine the suggested framework to make it more practical when applied to the UAE public sector. This was important as after the survey analysis it has been identified that there are some factors that do not affect technology change and these factors have been eliminated from the initial framework (stage 1) and a new framework (refined framework – stage 2) has been developed based on the interview results. Thus the researcher refined the suggested framework after undertaking the semi-structured interviews. Finally, the researcher tried to identify if there was any possible relationship between the reasons for resistance and the factors that affect resistance using Anova analysis.

From the interviews with the three middle managers the researcher could identify that the main *drivers of technological change* expressed in terms of their importance, and in relation to the working environment within an organization, are technological development and corporate evolution, while globalization and privatization have only a minor effect or no effect as a driver of technological change.

As stated by Young (2009), *technological development* nowadays leads to interventions that facilitate the entire system of an organization in collaboration with organizational changes. Nowadays organizations that adopt technology have extended their level of communication beyond general correspondence and facilitate online collaboration, community building and the sharing of best practices globally in terms of collaborative learning. Furthermore, managers expressed the belief that most employees do not want to change as they assume the premise that change will always have a negative impact. The main reasons for resistance towards change are fear of failure, fear of being made redundant and fear about an uncertain future. Managers believe that most resistance occurs when change is seen as negative as many employees think that change will increase work pressure by adding unwanted work, responsibility and accountability.

The researcher identified that *corporate evolution* also has a large impact on employee resistance to technology change. Regarding corporate evolution, Smith (2001) stated that

the overriding goal of the "cultural evolution" is to create an ambidextrous organization that is inventive and able to respond to the changing demands of the marketplace. The implementation of a corporate evolution culture is a logical process and this should be undertaken by top level management and should be supported by all the employees. Managers are of the opinion that organizations need to implement the changes needed by adapting themselves to global restructuring while keeping the level of commitment and motivation among the employees the same. For this management should understand how major changes in strategy brings with them changes in the cultural norms in which the employees operate.

From the interviews the researcher identified that *globalization and privatization* have a minor effect or no effect on employee resistance to technology change. According to Peters and Watermann (2004), resistance to change is foreseeable during globalization since employees tend to see the changes in an organization when it goes global. In globalizing a business, management must take care of its employees by motivating them and making them understand the importance of the change and its benefits to the organization. During this process the management has to take the initiative and communicate with the employees promptly. Buchanan & Huczynski, (2004) stated that one of most powerful forces in driving changes in the roles and relationships in a structured organization is privatization. In this regard Abeysinghe and Paul (2005) stated that private organizations can easily adopt to technological changes within the company and can hire employees with the required skills according to changes being made, whereas for public sector organizations adopting and implementing new technology is not so easy as employees who do not have skills required by the change feel insecure about their jobs, are dissatisfied with their work and thus they resist change. It is also seen that public sector organizations work hard to avoid the consequences that may come due to technological change and are more concerned about the feelings of employees with regard to their interests in poverty, social justice and the environment. But, in this case, the researcher identified that privatization and globalization have a minor or no effect on employee resistance to technology change in UAE public sector companies. Managers expressed the idea that management identifies the needs of staff and helps

them to have enough knowledge and skills to meet the job profiles and also to train them to meet all the requirements of the job. This is the reason privatization and globalizations have low or no impact on resistance.

From the discussion with the managers the researcher identified that ***Human factors*** lead employees to resist technological change. It is understood that human factors such as *Behaviour factors* (such as job dissatisfaction) lead to employee resistance to technology change. Oreg (2003), in his study, identified that people are different from one another in their personal inclination to resist or adopt changes. These changes can be seen in employees' perceptions and in their attitudes towards specific changes which are both voluntary and imposed. Furthermore, Oreg stated that employees who have dispositional resistance to change will feel negative emotional reactions such as anxiety, anger, fear etc. and that these dispositional changes have a strong impact on employees' emotional responses. There is definitely a relationship between the behavior of an employee and his/her attitude towards changing technological needs and their acceptance. From the interviews, the researcher understands that employee resistance to technology change is mainly due to fear of losing jobs (for example, if they are not able to learn or understand the concepts of the new technology, or maybe there are other skilled employees who may dominate them) or to job dissatisfaction whereby employees feel that they are being put under more pressure to meet organizational objectives and that, in some instances, they are being forced to learn new technology if they wish to keep their job. All these behavioral attitudes lead to employee resistance to technology change.

The next human factor to be considered is ***Cultural factors*** such as the conflict between the employees' needs and the company's needs. Mullins and Laurie (2005) stated that, in order to avoid resistance to change, management should pay special attention to certain areas such as how much organizational culture fits in with the change objectives and what can be done to adopt the change. This helps the organization reduce any resistance that may be caused by deep rooted values and culture. Greenberg and Cropanzano (2001) stated that an organization's culture consists of its shared assumptions, values and beliefs. Furthermore, they stated that when an organization whose prototypical culture is followed tries to adopt changes it requires many organizational activities to alter,

especially if the existing manager/employee relationship is altered because of a change in the culture. Furthermore, according to Val and Martines (2003) resistance is difficult to keep up when there are deep rooted values in an organization. There are many sources that are linked to a strong culture and also ‘evolutionary’ and cohesion which are the key values. These characteristics are serious problems that have higher incidence within changes when organizations seek a fundamental transformation. From the interviews the researcher understood that maybe not all cultural factors lead to employee resistance but, to some extent, an increase in conflicts between employees and management (or in other words, an ineffective organizational culture) may lead to employee resistance.

Other human factors were identified by the researcher as also leading to employee resistance and these were ***Demographic factors*** such as a lack of experience. According to Lombard and Crafford (2003), there is a relationship between the demographic factors and resistance to change. It has been seen that employees who are 50 years and above have a significant impact on resistance to technology change. It is true that, at the senior level, managers do not accept change as they have a low level interaction with technology aspects. They do not show much interest to learn new things as they are not that experienced and not as interested as the new employees who are more experienced in using new technology. Furthermore, these employees want to maintain the stability of their current position. All this indicates that the older a person is, the more resistant they are to change. The researcher wants to state here that when employees lack enough exposure to new technologies they resist change.

The final identified human factors that lead to employee resistance to technology change were ***Psychological factors*** such as a need for job security and a lack of appreciation. One of the important reasons for resistance is the emotional confusion that a change may cause especially if past experiences are not positive. Mason (2006) stated that employees frequently feel that management does not recognize their performance sufficiently and thus they have a feeling that they are under appreciated for their performance. Job security is a high priority for every employee in an organization. When employees feel that change may have an impact on their jobs they resist it and this fear always has a major impact on employee decisions. Thus the researcher is of the opinion that the issues

of job security and a lack of performance appreciation are major reasons for employees resisting technology change.

A positive aspect that the researcher has identified is that social or do not show any impact on employee resistance to technology change. Thus it can be said that there is a sense of belonging and a friendly environment in organizations which help their employees to accept changes.

From the interviews the researcher understood that ***Management factors*** also lead to resistance to technology change. The researcher identified that managers have a *fear of loss of power*. Mostly this situation has developed due to the fact that such employees are in senior positions. They do not want to take the risk of losing power and thus they are not able to become, or are not capable of becoming, acquainted with change. When organizations plan to implement change it is the responsibility of managers to know the requirements that are necessary in the change process without having any fear of loss of their job or power; when they do so there is a high chance of retaining them within the organization for long run.

Under management factors the next factor that leads to employee resistance is the *high cost of technological change*. The researcher, from the interviews, understood that managers and supervisors bring in change with an aim to improve organizational performance according to the market trends, conditions and competition from industry. It is a fact that management thinks that change is inevitable but they are afraid of the increasing costs that may occur during the change process. When there is a change to be implemented, manager's focus on the increasing costs of installing the new technology, the training and the development programmes that will be conducted to train employees.

From the interviews the researcher identified that *requiring extra effort and time* is another management factor that leads to employee resistance to technology change. Managers are of the opinion that employees and other managerial staff feel that they have to put in extra effort to learn the new technology and that they need to spend extra time in learning new things for which they are not ready. This ultimately leads to employee

resistance. Managers, to some extent, try to motivate employees to learn new things, but training often cannot be given in office hours so special programmes are sometimes conducted on days off when, psychologically, employees are not ready to learn. This is another reason behind resistance.

The next factor that leads to employee resistance to technology change under management factors is identified as *fear of overload*. Even though there is a large amount of advantage in learning new things, according to Kaila (2005) most managers/employees have a fear that they will get overloaded in the change process as they have to learn new things, attend training sessions, ensure that employees learn (in the case of managers), acquire new knowledge and spend more time in the office etc.; for all these reasons they resist change.

At a glance, the primary sources of resistance to change are developed during the formulation stage wherein change in perceptions arise (both in the perspectives of the management and the employees) such as inability of an organization to look into the future with clarity, an inability to accept any information that is not desired, a tendency of people to continue with present thoughts even though the situation has changed, implicit assumptions, communication barriers and organizational silence when the flow of information is limited to only certain individuals. In other words, it can be said that decisions are taken without taking all necessary information into consideration which then leads to high level employee resistance towards the change process.

After understanding the various drivers of change technology, the human and management factors that lead to employee resistance to change, the researcher focused on identifying the various strategies that can help management and employees to overcome resistance. From the interviews with the managers the researcher identified three major **strategies to overcome resistance to change**. Primarily *communication and understanding employees' needs* are very crucial in helping to reduce resistance to technological change. Management must understand and identify the needs of employees and analyse individual experience and performance levels when change is a must as

during the implementation stage these feelings influence the employees' subsequent actions.

Additionally, HR managers are also of the opinion that *creating an effective rewarding policy* for good performers assists in the process?. Rewarding employees based on their performance is said to be one of the best strategies that helps not only management to overcome employee resistance to change but also can lead to improved performance levels in employees. It is also said that changes could be made in a reward policy which will make the employees aware that they will be rewarded based on different criteria such as performance levels, completing the given task on time, reaching targets etc. According to Stavrakakis (2008), compensation and recognition in the form of money or its equivalent value brings satisfaction to employees and it boosts their morale. It performs a kind of motivation that management have to give and support in order to overcome the negative feelings and attitudes towards organizational change.

Finally, HR managers are of the opinion that *introducing training sessions* will mitigate the effect of resistance to technological change. It is essential for managers to implement different kinds of innovative training sessions so that they can build up a strong environment in the organization. This is a kind of motivation that they can offer to their employees for improving their performance and achieving the organizational goals effectively. Furthermore, it has also been mentioned that managing change is a sound management practice. In addition to a well organized planned approach to the change process, managers also have to create a positive, assertive and confident style of management which will create a good impression on employees and will assist in bringing down the pressure of resistance.

As a final step, after applying good strategies to overcome resistance to technological change, it was concluded from interviewees that the **indicators of job performance** factors are: improved quality of work, tasks will be accomplished more quickly with fewer errors, enhanced effectiveness on the job and, finally, the total overall job performance will be improved. Ostroff and Bowen (2000) stated that effective job performance indicators can be used as useful tools to help an organization in achieving its

goals effectively. They are a measure of the degree to which the objectives are being achieved. Furthermore, these job performance indicators help organizations in providing and developing quality services, in increasing organizational commitment and in helping to focus on client needs.

When looked at from the perspective of *improved quality of work*, organizations, in order to improve the quality of work, use different strategies such encouraging applications for promotions, recognizing the good work done by the employees, reward systems, introducing incentives, etc. Ali and Davies (2003) were of the opinion that, to overcome resistance to change and other effects of prejudice; organizations should train their employees according to their needs and also oblige them to participate in business matters. This has led to changes in the mindset and has improved the quality of work undertaken by employees. Another indicator was identified as employees being able to *complete the task faster with few errors*. Krull and MacKinnon (2001) stated that when employees are meeting targets on time it is an important indicator of effective job performance. Employee willingness and commitment to accomplishing the job within the time set provides job satisfaction, overcomes resistance in the organization and enhances the overall development of the company. This, in turn, will show an impact on effective organizational outcomes. Eliminating errors are an important part of indicating effective job performance. For example, a good appraisal system provides a knowledge of employees' interests and thus management can know what the employees needs and can motivate the employees and create a positive attitude in them towards the organization which leads them to make few or no errors in performing tasks. Furthermore, an organization can bring changes in the perception of an employee just by showing him/her errors or faults in a positive manner.

Employees are seen to have *control over work* after implementing the strategies. It is seen that employees are able to take up new tasks and complete them within the given time without feeling stress. They work with more ease and internal control indicators such as overcoming stress due to increased motivation, training and developmental programmes, reward policies; promotions etc. seem to work effectively on their work performance.

Enhance effectiveness on the job is found to be another job performance indicator whereby employees are comfortable with the changed organizational culture, structure and work climate. All the new ways of designing training and developmental programmes appear to help employees in improving their job effectiveness. Finally, it can be seen that there is an *improvement in overall job performance* in employees after implementing strategies to overcome resistance. This helps employees to overcome stress and work with more ease.

6.5 Stage 2: Framework Refinement Findings

At this stage the researcher, after having conducted interviews with three HR managers in selected UAE public sector companies, refined the framework that had been based on the results and findings at stage 1. In stage 2 a new framework was developed with the refined factors that were identified through the semi-structured interviews. The reasons behind conducting the semi-structured interviews was to understand how employees are affected by technology change in organizations and what are the major reasons and factors that lead to employee resistance. The questions were designed to understand the impact of, and the reasons for, employee resistance to technology change and management resistance to technology change as well as the necessary strategies required to mitigate resistance to technology change. Open ended questions were discussed with the interview participants. According to the interviewees' answers, all the participants (A, B and C) agreed with all the factors mentioned in the questionnaire. From an analysis of the interviews, it was identified that there are some factors that do not affect technology change and these factors were eliminated from the initial framework (stage 1) and a new framework (stage 2) was developed based on the interview results. A list was made in order of priority spanning the factors from those that were the most effective down to the factors that were least effective

The following sections will discuss how and what affects employee resistance to technology change.

6.5.1 Interview Findings

From the interview results and analysis the researcher understood that only technology development and corporate evolution are the factors that drive technology change and globalization and privatization do not affect an organization as drivers of technology change. This maybe because employees are not aware of company plans, because the companies are public companies and any changes and plans come from the government. According to Gray (2005), many companies who have globalization plans keep them secret from their employees because they believe that they will create problems in workforce. It is important for organizations to take steps in order to avoid such situations; organizations can be more specific about the changes and can explain how globalization will benefit employees such as providing better career opportunities in terms of pay and bonuses. It is a similar case with privatization since these are public companies where employees feel more secure in terms of jobs and positions. Furthermore, employees do not have to have high skills in order to compete and as such will resist any privatization. Abeysinghe and Paul (2005) explained that private organizations can easily adapt to technological changes within the company and can hire employees with the required skills needed for these changes, whereas for public sector organizations adapting to, and implementing, new technology is not that easy and employees that do not have the required skills will feel apprehensive about their jobs, will be discontented with their work and will resist change. Thus globalization and privatization do not show any impact as factors that drive technology change so these items were deleted¹ from the framework. It was found that the factor technological development has a more major impact compared to the factor corporate evolution and thus these factors were moved in the Figure below (Figure 26) based on level of impact².

¹ Deleted items are indicated in red color

² Based on the level of impact items changes were made and are indicated in yellow color

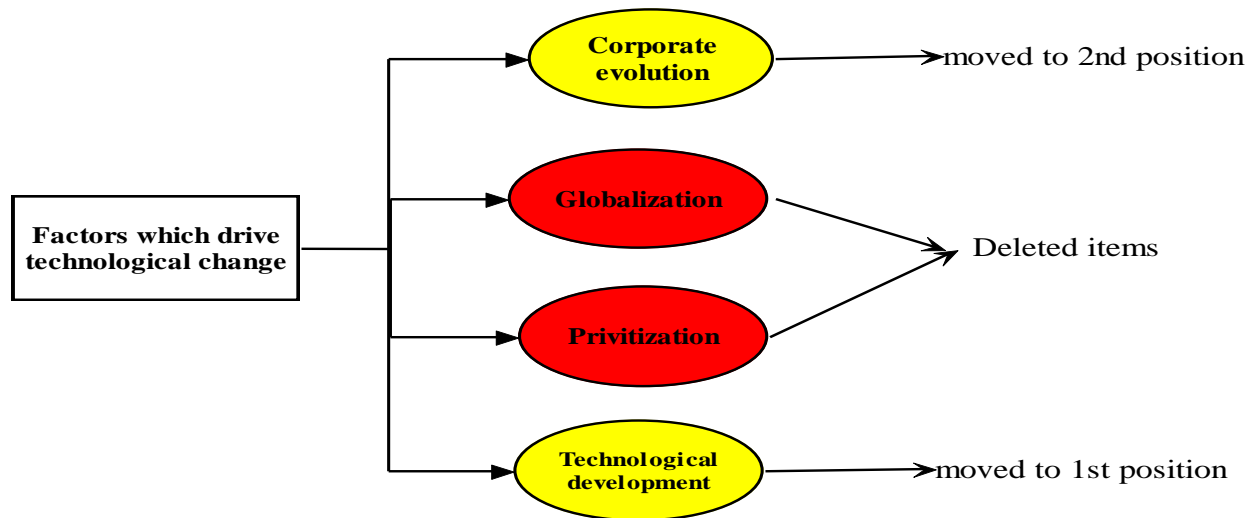


Figure 25: Change in positions of factors which drive technological change

As shown in figure (27), human factors are sub divided into five major factors (demographic, cultural, social, psychological and behavioural) which are in turn categorised. From the interview results, the researcher identified that primarily social factors (narrow outlook of employees and others in society and vested interest of social group and employees to continue in the same position) did not show any impact on employee resistance so social factors have been deleted from the framework. This could be due to the organizational environment being the same as all the selected organizations are public sector and majority of employees are UAE nationals with same social backgrounds. Secondly cultural factors were shown to have a little more impact when compared to demographic factors so these factors were moved according to the level of impact. Thirdly under behavioural factors (job satisfaction and loyalty) the factor loyalty did not have any impact so this factor was deleted from framework. Fourthly under the demographic factors (age, gender, education and experience) gender and education had no effect so these two factors were deleted from demographic factors. Finally under psychological factors (lack of appreciation of tolerance, lack of trust in others and need for security) the factor lack of trust in others is identified to have no effect on resistance to technology change so this factor has been removed from the initial framework.

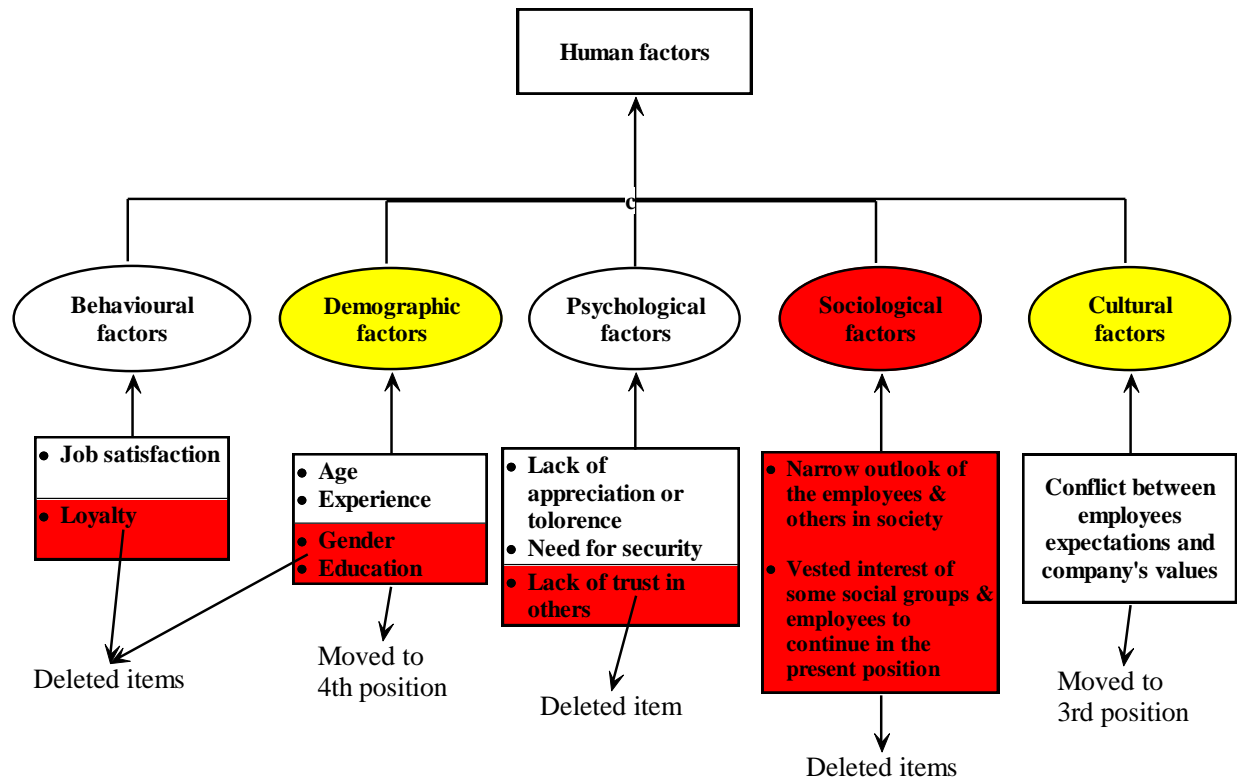


Figure 26: Change in positions of human factors

As shown in figure (28) from the interview results it is identified that under the management factors that led to resistance to technology change the highest preference was given to fear of loss of power and to costs of the changes so the positions of these two items were changed. Later two factors such as require extra effort to learn and relearn and fear of overload are given least importance. This shows that management is more concerned of the cost involved in change and also has a fear to lose power if they do not perform well.

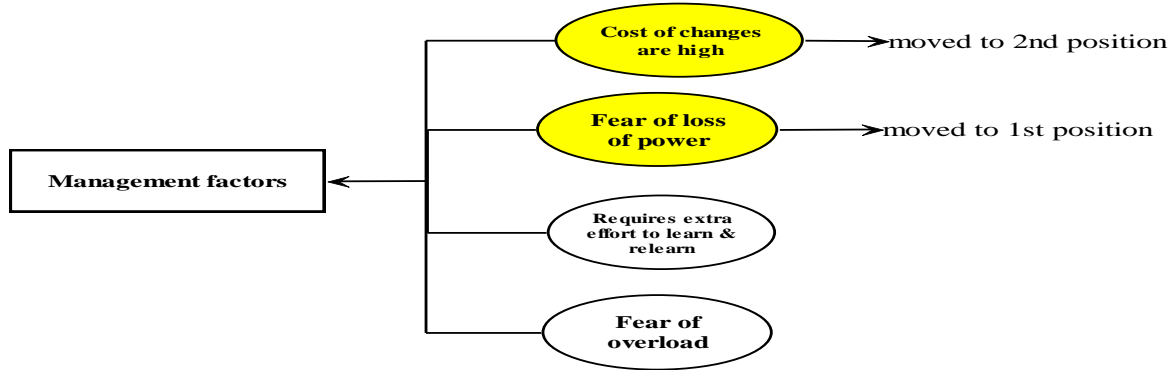


Figure 27: Change in positions of management factors

As shown in figure (29) from the interview results it is identified that under strategies to overcome resistance to technology change, motivation was found to have no impact on employee resistance so this item was removed from framework. Here motivation is referred to as a self-driving force and is a wider aspect which could be in the form of encouraging an employee and bringing a change in their behaviour (for ex. appraisals). As discussed by Hutchin (2001) motivation can be undertaken through giving proper counselling which includes discussing with employees on problems they are facing in performing work. Further Herzberg Two factor theory states that motivators could be intrinsic and extrinsic. The factor rewarding policy is considered as one of the extrinsic motivator that includes financial rewards and as per the interview results this motivator is the preferable strategy manager's use for employees to overcome resistance to technology. As reward policy is given more preference when compared with training these two items were moved based on the level of impact. Reward is a part of motivation .However, based on the survey it was found that only motivation in the content of Abu Dhabi is reward .Therefore, it was removed of the general category of motivation and included reward policy more explicitly.

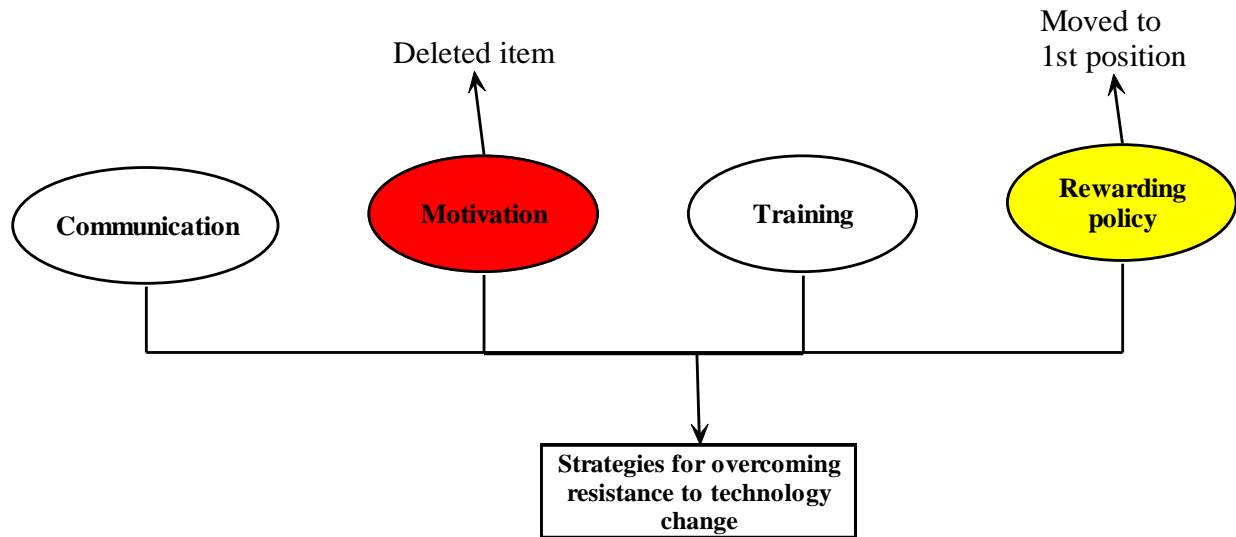


Figure 28: Change in positions of strategies for overcoming resistance to technology change

Finally as shown in figure (30) and from interview results it is evident that under indicators of job performance effectiveness more importance was given to improving the quality of work, accomplishing the task(s) and eliminating errors than control over work and enhance job effectiveness and so these factors have been moved based on the preferences. Ali and Davies (2003), state that to overcome resistance to change organizations train their employees according to their needs and also make them to participate in the affairs of the business. This brings changes and improves the quality of work undertaken by the employees and helps to accomplish the given task quickly (Dean and Linda, 2010)

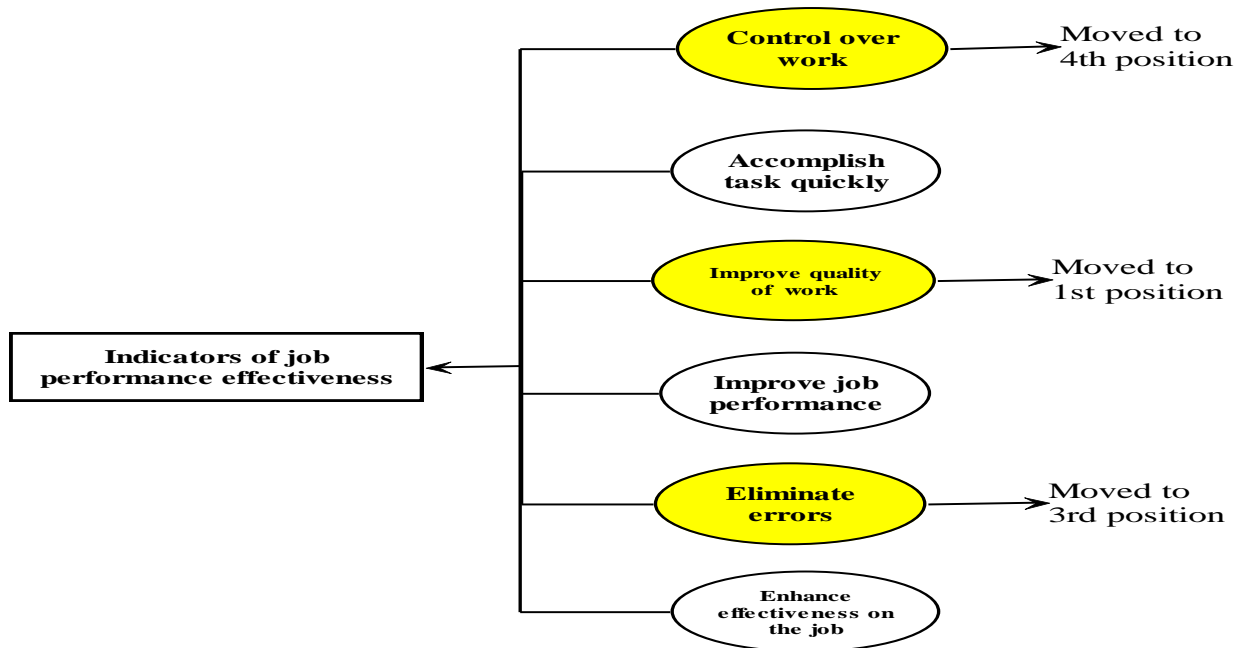


Figure 29: Change in positions of indicators of job performance effectiveness

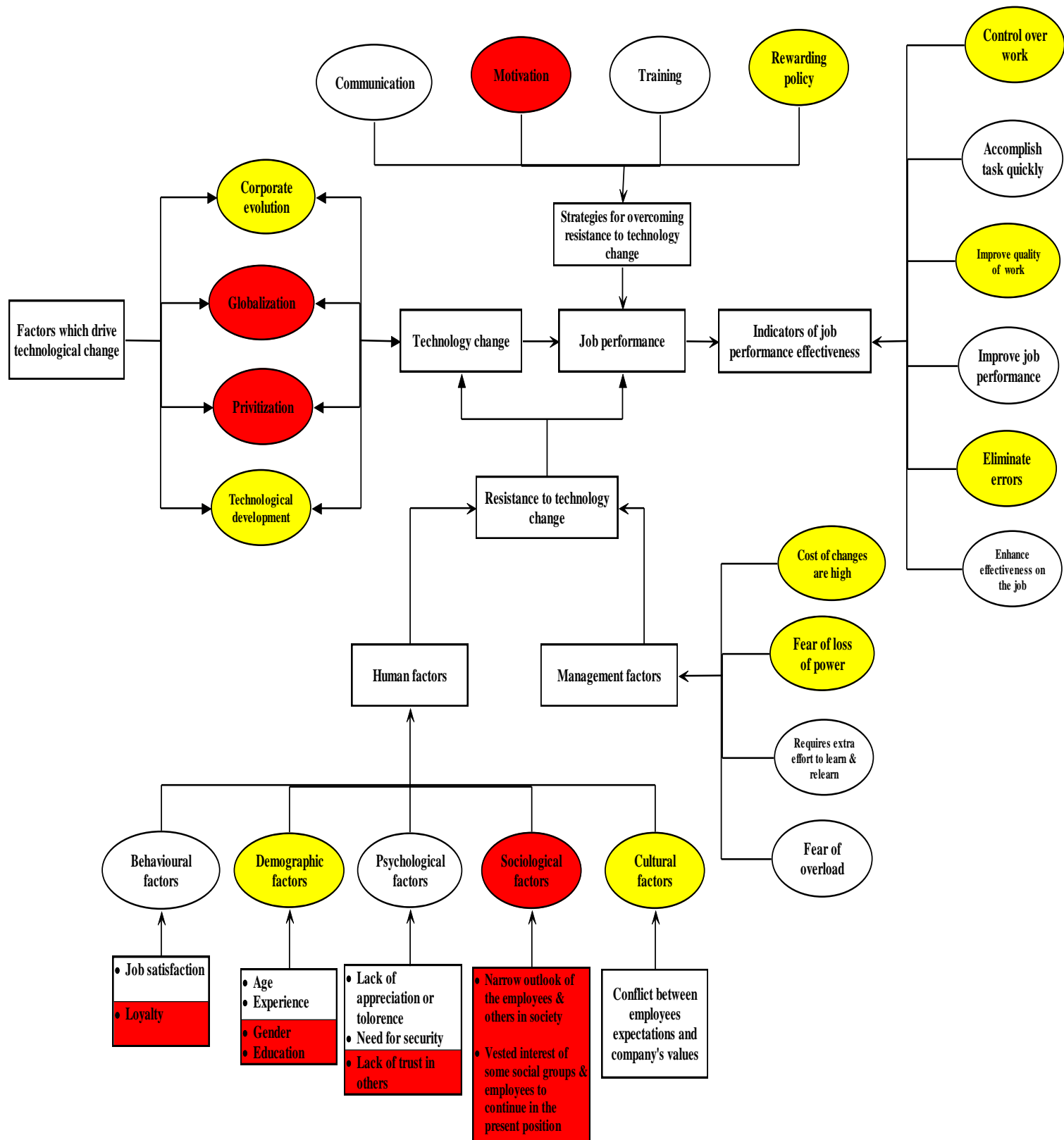


Figure 30: The final framework after refinement through the survey results and the interviews

The overall framework after refinement is depicted in the above Figure (31). In the above Figure the red blocks indicate the deleted items as these factors are said not to affect resistance and the yellow blocks are the factors which have been moved based on the preferences given (from most preference to least preference). It is concluded that factors such as globalization and privatization are not factors that drive technological change. In their article Bertucci and Alberti (2001), state that globalization is a wide term and includes changes in trends such as cultural, economic and social spheres. It is also viewed that the term globalization represents expansion of markets, rise social and political movements and bring challenges to state and institutions. These aspects lead to changes in the market and organizations as they need to compete and sustain. It is viewed by Bertucci and Alberti (2001, p.1) *that globalization does not alone drive technological innovation and entrepreneurship as they cannot explain the process of improved economic integration*. Further Bertucci and Alberti (2001, p.2) state that *“economic globalization is not a blind force. It is still individual governments that set the policies and the rules of the globalized economy”*. Technological development was given more importance when considered with corporate evolution so these two items have been moved as per the preferences. As per the interview results it is seen that motivation not a suitable strategy for overcoming resistance to technology change. As a motivator rewarding policy factor was given more preference when compared to training so rewarding policy has been moved to the first position. In terms of indicators of job performance effectiveness, most importance was given to improving the quality of work, accomplishing task(s) and eliminating errors so these factors have been moved based on the preferences. Under management factors, the highest preferences were given to fear of loss of power and the cost of changes so the positions of these two items have been changed. Finally, considering human factors, it was seen that sociological factors are said not to have any effect on resistance to change so these have been removed from the framework. Finally, two demographic factors, age and experience were given least importance so they have been moved to the last position and cultural factors are said to be second in importance so they are been moved to the second position. The behavioural factor loyalty did not show any impact; in demographic factors gender and education had no effect and in psychological factors a lack of trust in others did not show any effect on

the resistance to technology change so all these factors have been removed from the framework at stage 2.

6.6 Stage 3: Framework Validation Findings

6.6.1 Company A

Achievements and non-achievements within the company can be indicated at different levels. For level one, information was retrieved from the interviews with the managers, for level two information was retrieved from documents and records/reports and for level three information was retrieved from company vision, the company's mission and the strategies of top management.

Table 40: Company A's Factors' Assessment

| FACTORS | Level 1 | Level 2 | Level 3 |
|--|----------------|----------------|----------------|
| A. Key drivers for technological change | | | |
| Corporate Evolution | | | |
| Technological Development | | | |
| Globalization | | | |
| B. Factors that are used to overcome resistance to technological change | | | |
| Rewarding the employees | | | |
| Training programmes for employees | | | |
| Communication between management and employees | | | |
| C. Technological change and job performance | | | |
| Improvement of work quality | | | |
| Accomplishment of work quickly | | | |
| Eliminating errors | | | |
| Work control | | | |
| Job effectiveness | | | |
| D. Management resistance to change | | | |

| | | | |
|---|--|--|--|
| High cost | | | |
| Fear of loss of power and control of work | | | |
| Requirement for extra effort to learn and relearn | | | |
| Fear of overload | | | |
| E. Cultural Factors | | | |
| Conflict between employees' expectations and company's values | | | |
| Lack of change appreciation | | | |
| Need for job security | | | |
| F. Demographic factors | | | |
| Age | | | |
| Experience | | | |
| Gender Difference | | | |

Table (39) shows an assessment of the framework factors within company A regarding which factors affect technological change adoption by the company. It also shows how resistance to change has been overcome, how it showed an impact on employee job performance, what factors caused management to resist new technology adoption, and what factors were effective in overcoming resistance. The **red cells** highlight what the company did not achieve in this respect and the **green cells** reveal what the company has achieved.

6.6.1.1 Key drivers for technological change

Table (39) indicates that company A did not achieve level one in one factor which was globalization. The researcher found that company A did not relate to the globalization of businesses which has continued to grow as companies are increasingly trying to capture knowledge and market opportunities internationally. The rapid evolution of national economies and the ways of conducting knowledge-intensive businesses has caused

researchers and analysts to pursue a deeper understanding of the globalization of corporate businesses and related driving factors.

Significantly, company A was not able to reach level two and three in relation to technology development.

The researcher found out that company A has not clearly identified its vision concerning the adoption of new technology and the reaction of employees. Organizational vision is a picture of the future. Vision plays a critical role in successful change efforts. People need to understand how the changes that are planned are critical to the future state of their organization. A well-communicated vision provides for the alignment of people with the business objectives.

There was no proper documentation or record found in the organization that explained about technology change. Major drivers of technological change, as drawn from the interviewees' answers, are competition among companies and customer preferences which occur as a direct result of globalization and technological innovation. New technological concepts lead to the frequent obsolescence of existing capabilities. Today, the driving force behind corporate evolution is technology. Thus the researcher identified that corporate evolution has been implemented at all levels (has reached maturity levels) of the company and management is keen to drive the organization towards corporate evolution in terms of technology development. According to Oliver (2000), the implementation of corporate evolution culture is a logical process and this should be undertaken by top level management and should be supported by all the members of the organization. Furthermore, Wargin and Dobiey (2001) were of the opinion that rapid changes to technology-driven solutions means that employees must be able to multi-task and cope with a long learning process. Such strategies would place the change process development within the right corporate culture and will ensure that the organization will achieve its strategic goals.

It is true that successful corporate transformation requires a great deal of effort and clarity from the top groups in the organization. It is also understood that high level executives

across the globe are beginning to embrace new services and offerings as gateways towards enhanced productivity, internal best practices and customer service. Using technology to rethink business strategy is inspiring and decision-makers should be aware of how technology can best be used. From the interviews, the researcher identified that managers are of the opinion that although senior management develop plans to implement new technology they are not always aware of the procedures required to implement the technology and whether employees are able to reach their expectations in using the technology. Furthermore, leaders in company A focussed on bringing in changes using technology advancements and most aspects of globalization were ignored which meant that the company did not even attain level one in this area. Thus company A should focus more on initiating and creating a clear vision on the technology developments and changes that are to be brought into the organization. This will help their employees to have a higher level of acceptance of technology change.

6.6.1.2 Factors that overcome resistance to change

In terms of communication, company A could achieve only level one and level two but could not reach level three as there was no clear vision or mission statements concerning how to assist employees to overcome factors of resistance. According to Cornelissen, Kafouro and Lock (2005), an organization should establish consultation with and participation by, the work force when it is planning for a change process. This communication with the employees regarding the present situation and future desired state will inculcate trust among the employees. It is important and also there is a chance of receiving important advice that may assist the change process. New channels of communication must be established in order to avoid isolating sections of the workforce so that everyone in the organization should be able access the information available and discuss the same. When implementing change effectively, management must understand the feelings that individuals experience when confronted with change as these feelings influence their subsequent actions. Furthermore, from the interviews, it is understood that managers are of the opinion that top executives can make their own efforts more effective by holding staff meetings and by developing a training plan with feedback from the people involved. This is possible when effective communication has been established and

change aspects have been discussed. Managers are of the view that leaders can do this by shifting their attention from the facts of schedules, technical details, work assignments, and so forth, to a discussion of the items that impact on developing resistance and on the receptiveness to change.

Significantly company A did not achieve level three in training. Managers view training as the cornerstone for building knowledge about change and the required skills. It is said that project team members will develop training requirements based on the skills, knowledge and behaviour necessary to implement the change. These training requirements will be the starting point for the training group or the project team that develops the training programmes. But the researcher identified that these aspects are confined to documents only and that the leaders are not taking an active part in building effective training plans; this responsibility has been handed over to the project team leaders who are supposed to look after the training needs. In this study in company A employees were of the view that supervisors give them the necessary training that is effective and helps them to learn new things in order to meet the job requirements. According to Butterfield (2010), it is essential for the managers to implement these kind of innovative trainings' sessions so that they can build up a strong environment in the organization; this is the type of motivation that they can give to their employees for improving their performance and achieving the organizational goals effectively. Thus it can be understood that middle management is responsible for identifying the needs for training and setting up the appropriate training(s) for the employees based on their skills and knowledge.

From the Table (39) it is clearly evident that company A has not achieved any of the levels in terms of rewarding employees. The researcher found documents in the company that archives which provided evidence of this. In the view of a manager from company A management should motivate employees and should includes bonuses at the end of the financial year, promotion and letters of thanks.

However, there is no reward system in company A that will motivate employees to accept, and to react positively to, new technology adoption. This shows that employees

have not been rewarded for their performance after change has been implemented. In this scenario it is part of the role of leaders to understand the importance of motivating employees through a reward system as this helps in boosting performance and enables the employees to easily adapt to the changed system.

6.6.1.3 Technological change and job performance

A user's intention to adopt a new technology is influenced by variety of beliefs and perceptions. Among these factors performance is considered by company A as the key factor in the adoption of new technology. Managers believe that company A should invest in technology with the expectation that it will contribute to performance and that employees in the company must use the technology for it to make a contribution. It is a good indication, as can be seen in Table (39) that company A was able to achieve all the factors of job performance and has been successful. Company A managers believed that the state of the technology determines the quality and quantity of goods and services produced. In terms of improvement in work quality they believed that performance positively correlated with satisfaction and commitment, and that work quality and quantity was negatively correlated with absenteeism and tardiness. Human resource performance is intimately linked to technological change and technological innovation. Technological change can be effectively managed through a human resource joint approach and control. The researcher found out that company A considered the improvement in work quality, the elimination of errors and the effective control of work jobs were a direct result from the adoption of new technology.

From the interviews the researcher has found that efficiency was also identified as a reason for technology adoption. Respondents decided to adopt new technology in order to become more efficient in their various businesses. Some respondents stated that their main reason for technological adoption was to improve their work in terms of speed. The accomplishment of producing work quickly and reducing or eliminating errors was another major factor which company A did achieve. As stated by Krull and MacKinnon (2001), meeting targets on time is an important indicator of whether job performance is effective and efficient. Furthermore, Mathieu and Zajac (2000) were of the view that

organizational improvement and change enhances the effectiveness and performance of jobs. Thus the researcher identified that the workplace is dependent on many attributes such as an individual's perceptions, the organizational structure, the workplace climate, training and development, motivation, rewards etc. which all help management to achieve its goals. Managers are of the view that management take effective steps through the introduction of new technology as this helps employees to maintain the quality of work and furthermore it then becomes easier for both management and employees to have control over the work processes. Thus this has lead to job effectiveness in employees.

6.6.1.4 Management resistance to change

The researcher found that company A was not able to achieve all levels in terms of fear of loss of power and control over work and including extra effort required to learn and relearn the changes and adapt to the change. From Table (39) it is evident that this has been achieved only at level one but could not reach all levels. The high and middle managers interviewed were of the opinion that the main two reasons for the management's resistance to technological adoption, if any, might be the high cost of change and the extra effort required to learn and relearn. The researcher found out that the reaction of some managers in company A to change was governed by their perceived loss of work control. Technological changes may disrupt the labour - management relationship. The loss of work control by company A managers was their main reason for resistance to technological change. The researcher found out that the cost of adoption or the use of new technology was not raised by company A managers as reasons to resist new technology.

From the managers' views, the researcher identified that loss of status or job security in the organization was one of the factors that managers viewed as harmful to their current situation. In his research, Carr (2002) described that, during the change process, managers have a fear of losing their power or designation which is the reason why they do not want any changes to take place in the organization. This indicates that managers resist any administrative or technological changes that result in their role being eliminated or in their power being reduced. From their perspective, change is harmful to

their place within the organization. This approach alone is ineffective. However, managers who overuse this approach will harm the organization's effectiveness over a long run. Without a thoughtful change strategy to address this area, leaders will trigger strong resistance and organizational turnover. The less the managers know about a change and its impact on them, the more fearful they become.

Many managers naïvely assume that if people like a change or think it is a good idea, they will not resist it. Significant change is a disruption in people's expectations about the future. This disruption can cause a loss of control and they will resist this loss of control even if they think that the change is a sound one. The researcher found that some managers stated that they resisted new technology because they do not like change; they do not want to learn how to use new technology as it requires them to put in extra effort. Factors under management resistance clearly indicate that company A has not reached a maturity level in terms of documenting the and in terms of producing the company vision and mission. Furthermore, it should be compulsory to learn new things and acquire knowledge about new changes that are taking place in the organization. It is the responsibility of managers to acquire such skills and also to help employees and subordinates in the learning process of change management.

6.6.1.5 Cultural and demographic factors

The researcher identified that company A could reach all three levels in terms of the conflicts between employees' expectations and the company's values. Managers are of the view that conflicting values and judgments among employees arise not only from conflicting interests but also from differences of interpretation. Conflict around technology adoption and implementation is characterised by the diverse perspectives of the participants involved. High and middle managers thought that the conflict factors (e.g a lack of appreciation and need for security) may be felt by a few employees and they also thought that the demographic factors (age and experience) of the employees have some impact on their opinions concerning technological adoption. The researcher, after investigating company A's documents and records, could see no signs of the two factors of conflict. Upon reviewing company A's vision, mission and strategy in the expectation of finding evidence of how conflict was solved the researcher identified that the company

shows its commitment to its employees by promoting open and honest communication, providing a safe and hygienic work environment for all employees, and so on.

Furthermore, in terms of a lack of change appreciation, it was found not to have been achieved at any level which indicates that company A totally lack appreciation of this factor. Employees are of the opinion that rewards are given but not in consideration of their performance during/after technology change; instead it is given under the normal reward policy. Thus within this company the middle and senior management have to take the initiative regarding change appreciation. This is going to help not only in improving employee performance but also in improving overall organizational performance.

Significantly, company A was found to reach all levels in terms of its demographic factors of age and experience which were given high importance in all aspects of change management. Looking at company A's strategies for demographic factors (age and experience) the researcher was able to identify that the company recognizes these factors as important when considering the adoption of technology and in getting the employees involved in making decisions about such aspects as affording adequate training and incentives. Considering the demographic factors, company A was not able to successfully implement strategies on gender differentiation and it was also found that company A gave more preference to hiring male employees than female employees. Furthermore, the interviews with high and middle managers in company A showed that cultural factors such as their value as related to introduction of new technology and its effect on employee management relationships could lead to conflict between employees' expectations and new technology change in these respects. In addition, the need for job security and satisfaction and the demographic factors such as age and experience all contribute to resistance to technology change and are taken into consideration when new technology is adapted. As per company A values management is of the view that conflict cannot be avoided, but management has a challenge is to learn to plan and protect constructive conflict while at the same time reducing destructive conflict before it overwhelms the organization. This indicates that the company management has defined its values with regard to cultural aspects and employee understandings.

Significantly, company A was found not to achieve any level in terms of gender differentiation. UAE is said to have a high score for masculinity but it is seen that currently the UAE public sector is providing equal opportunities for both genders and respondents have been equally distributed for this research. The researcher identified that employees were of the view that there is a high power distance that exists in the organization but not a gender difference. Furthermore, the researcher is of the view that company A has no clear documents or records or any clear statements of vision and values in relation to gender differentiation and that, as per the managers' views, gender differentiation did not affect technology change.

6.6.2 Company B

Table 41: Company B's Factors' Assessment

| FACTORS | Level 1 | Level 2 | Level 3 |
|--|----------------|----------------|----------------|
| A. Key drivers for technological change | | | |
| Corporate Evolution | | | |
| Technological Development | | | |
| Globalization | | | |
| B. Factors that are used to overcome resistance to technological change | | | |
| Rewarding the employees | | | |
| Training programmes for employees | | | |
| Communication between management and employees | | | |
| C. Technological change and job performance | | | |
| Improvement of work quality | | | |
| Accomplishment of work quickly | | | |
| Eliminating errors | | | |
| Work control | | | |
| Job effectiveness | | | |
| D. Management resistance to change | | | |
| High cost | | | |

| | | | |
|---|--|--|--|
| Fear of loss of power and control of work | | | |
| Requirement for extra effort to learn and relearn | | | |
| Fear of overload | | | |
| E. Cultural Factors | | | |
| Conflict between employees' expectations and company's values | | | |
| Lack of change appreciation | | | |
| Need for job security | | | |
| F. Demographic factors | | | |
| Age | | | |
| Experience | | | |
| Gender Difference | | | |

Table (40) shows the assessment of the framework factors of company B concerning which factors affect technological change adoption by the company and how resistance to change has been overcome, how it has showed an impact on employee job performance, what factors caused management to resist new technology adoption, and what factors affected overcoming the resistance. The **red cells** highlight what the company did not achieve in this respect and the **green cells** reveal what the company did achieve.

6.6.2.1 Key drivers for technological change

The drivers of technology progress are often determined by the same forces. The relative rate of diffusion of the technologies depends on the adopters' incentives. All else equal, a superior technology or a technology that is more effectively marketed and distributed will be adopted more quickly, while a harder-to-install technology will be adopted more slowly. From Table 2 it is evident that company B was able to achieve all three levels in terms of corporate evolution and globalization. After having had comprehensive and detailed interviews with upper and middle management in the organization and from the factor assessment of company B the researcher has identified that they have prioritized

the need for corporate evolution by investing in the personnel's capabilities for adopting technological innovation that is too powerful, and sometimes controversial, current social and economic trends are globalization and the widespread adoption of new technologies. Many researchers argue that these two trends are closely associated, each driving the other forward and both being driven by other common forces such as trade liberalization, deregulation, migration, and the expansion of capitalism and democracy. Thus managers are of the opinion that new technology adoption fosters globalization by reducing transaction and coordination costs and creating new and expanded markets with economies of scale. For these reasons company B considered globalization as a major driver of technology.

Significantly, it was identified that company B could not achieve even level one in terms of technology development. Company B managers reported two technology drivers that have forced the adoption of new technology, corporate evolution and globalization. These drivers are critical variables that will determine which technology alternatives are selected. The drivers depend on the technology areas but they relate to how the technology addresses the critical system requirements. In his study, Gray (2006) stated that there are many factors which drive technological changes and they include corporate evolution, globalization, privatization and technological development. Thus there is a need for change management when implementing new technological solutions and management has to discuss with the employees the issues encountered during this type of change. Most of employees oppose the new technologies because they feel that change will not solve all the problems in one particular period of time. The question that arises here is how to deal with resistance to change with regard to technological development? Furthermore, the researcher is of the opinion that the decisions taken with regard to technology change shape the markets in the economy as a whole. Technology development has many trends that assist in developing technical standards, improving accessibility and also in increasing the communication capacity. In company B managers believed that to educate/update the current administration staff through conducting seminars, workshops, etc would help the organization to reach all levels in terms of technology development after the staff had acquired proper knowledge/know how in the

management of the new technology. Then the organization can head for sustainable technological development.

After going through the company's previous records and procedures, the researcher identified that the need to have caused the company to modify their systems, plans of action and strategies by bringing in appropriate people and adopting the changes brought in by them and had also enhanced the efficiency of work through the implementation of the innovations. It has been recorded that corporate evolution is the most important factor for driving towards the adoption of new technology. Further objectives for technological change were aimed at in the vision and the mission of the company. When reviewed it is understood that the way to reach the goal was described as through a proper approach of people, their interests and by enhancing their knowledge and ideas on information technology. It was evident that corporate evaluation was very important to attain technological development. It was concluded from the interviews that the main key driver of technological change is corporate evaluation followed by technological development.

6.6.2.2 Factors that overcome resistance to change

With regard to the factors that relate to overcoming resistance to technological change the researcher found that company B had reached all levels in all the factors mentioned. Company B believed that motivation is the main factor that that should be given importance and this included training and implementing effective communication channels. The motivation factor has been assessed as being at level 1. The researcher found that company B rewarded its employees when new technology was adopted. The motivation system that company B used included bonuses and promotion for those who quickly learnt the new technology and used it to improve their work performance and quality. According to the interviews undertaken with the high and middle managers, conducting training programmes was the most important factor followed by an improvement in the communication between management and employees in order to overcome resistance to technological changes. From the interviews the researcher identified that managers were of the view that training programmes are useful to transmit information; they update and help in alleviating barriers (communication) between the

management and employees thus making the environment more friendly and the employees more receptive. The researcher concluded from the interviews that the use of rewarding, the training of employees and communication are the factors that are used by management to overcome employees' resistance to change.

Furthermore, the researcher identified that in company B the communication channels between the company management and the employees was considered as a vital and important measure to reduce and eliminate resistance to new technology. Thus the researcher found that company B believed that technological change requires enhanced education and training. Furthermore, training programmes were positively and statistically associated with the increasing adoption of new technology. The obtained results have suggested how important and necessary it is to train and give appropriate information to workers when new technology is introduced. Finally recognition, assessment and the integration of the employee is given enhances importance and in order to gain further improvement company B needs to focus on the prerequisites for the management of any new system and technological change.

6.6.2.3 Technological change and job performance

After assessing the factors of job performance effectiveness in company B the researcher identified that there was a high level of achievement in the job performance of all the employees and the company was able to reach all three levels. The researcher identified that company B managers consider that factors such as the provision of good? Physical working conditions, economic status, orientation and security, and motivational factors such as opportunities for advancement, responsibility, recognition and achievement were used to stimulate and motivate employees to adopt technology innovation. According to the managers, eliminating errors, improvement in work performance and improvement in work quality contribute the most to job performance effectiveness as a result of adoption as a result of new technologies.

The researcher is of the view that, since the introduction of technology, organizations focuses on improving human resources and organizational performance as most of them

depends upon these factors. Human resource management still occupies a critical position in organizational settings. From the interviews the researcher identified that company B managers are of the view that an effective employee relation system encourages individual and group commitments to excellence and help in creating a favourable environment for new technology to take place. The researcher found that company B respondents believed that higher adoption rates have been observed when employees have control over the new technology and its implementation. The reason for employee fear of change is uncertain with regard to the new work-related expectations associated with job performance. Sometimes, the employee fears that he/she may not have enough skill to perform the changed task. Thus it can be said that the factors which contribute to the employee's job performance and effectiveness are the quality of the work environment, the accomplishment of work tasks quickly and at the required time, doing work efficiently and avoiding errors and control overwork.

6.6.2.4 Management resistance to change

In relation to the reasons for management resistance to change the researcher identified that the company is able to achieve all levels with regard to the factor of the high cost. Furthermore, the researcher identified that within this company there are two major factors for the management's resistance to technological adoption and these turned out to be the high cost of change and the extra effort to learn, as reported by the high and middle manager participants. After a detailed study of the documents and the company vision and mission covering reasons for resistance to technological change by the top management, it was concluded by the researcher that was the extra liability for the company to bear in terms of the cost for change, in terms of purchase, proper training post training evaluation etc., go off from routine work streamlines and hence requiring extra effort to manage, implement and execute the monitoring of the innovation and to conduct training sessions to share information and experiences.

Significantly, company B was able to achieve only level one for the factors such as fear of loss of power and control of work, and the requirement of extra effort to learn and relearn. It was identified by the researcher that there was no appropriate documentation or

vision or mission set up by the top management in consideration of these factors. Furthermore, from the interviews, the researcher concluded that the factors that cause management to resist change are the high cost of change and the fear of the unknown, e.g. losing power, losing status in the company, the need for extra effort to learn, loss of job security, feeling overloaded, and difficulty in coping with change or the pace of change.

Thus the researcher was of the opinion that when a change process takes place, it is essential for the employees as well as the managers to make themselves comfortable in accepting the change with the help of training and other knowledgeable sources (as they fear that they could be replaced with other employees who are young, energetic and have a sound knowledge about new trends and approaches that can help the organization in meeting its requirements for the change process). Hence they resist change. Thus it is the responsibility of top management in the organization to learn how to help managers in this matter and to help them to learn new techniques associated with the change process which ultimately will help them in the long run.

6.6.2.5 Cultural factors

When considering the cultural conflicts in an organization (psychological factors) it can be identified that company B was able to achieve all levels (reach all three levels) in terms of technological change. Although this is a positive step for the company's administration it raises concerns for the employee. In many cases employees can be subjected to downsizing and these fears persist in all organizations all around the globe.

Significantly, job security could not reach up to level two. When the researcher looked into the documents and records in this consideration he could see that company B had no policies or rules for providing job security for current employees. In the interviews managers stated that job security is one of the leading factor as employees fear to be laid off after the adoption of new technology. Furthermore, the researcher also identified that job satisfaction reduced the amount of conflict i.e. it was inversely proportional to conflict and no details were found in the records of the company when studying the

company's vision, mission and strategies for the expectation of values and for assurances regarding job security. Also, the researcher identified that a lack of change appreciation was confined to documents and was not implemented strategically so this factor achieved level two but not level three. Furthermore, the researcher understood that the strategic steps taken to conduct training and to educate the employees, as mentioned in company's vision and mission, helped the company in the adoption of technology without resistance. Thus the researcher is of the opinion that, in addition to training, communication and motivation, it is important for top management to focus on change appreciation which could be in a variety of forms. This is intended to boost employee performance and overcome fear of job loss.

6.6.2.5 Demographic factors

According to managers, age and experience both tend to be factors that affect resistance to change. Older employees may not find it easy to make the extra effort required to deal with new technology whereas experienced staff members may require a lot of time to change from one pattern of work to another.

In regard to demographic factors that contribute to new technology adoption it was understood that company B senior workers (in work for more than 10 years) received their education a long time ago and it could be argued that due to knowledge depreciation their skills have become obsolete in the meantime. Older workers have less incentive to invest in new knowledge since their time horizon until retirement is shorter when compared to younger employees. Thus the researcher is of the view that, as a result, increasing technological change requires more flexibility and new skill structures that might affect older employees more rather than younger ones. A logical result is the belief that older employees are likely to resist new technology more than younger employees. Instead the results of the study showed that there is no significant relationship between age and the perception of new technology. Furthermore, the analysis of the data provided by the respondents revealed that technological change was connected with employees' experiences.

Significantly, company B showed no impact by gender differentiation at any instance or level. The respondents in company B believed that while women showing no differences in job stress (relative to males), nevertheless they exhibited a very different pattern of job skills and performance than the men. Gender is consistently mentioned with age and education in research relating to the acceptance or rejection of new technology. The proposed framework includes three groups of factors that affect resistance to change and how, if these factors are satisfied, they lead to acceptance of change. The interviews revealed that psychological factors such as a lack of appreciation of change and need for job security have an impact on the resistance to change. The researcher concluded that demographic factors such as gender, age and experience of the employees do not have an impact on change adoption and on resistance to change. Therefore, company B was able to achieve all levels in terms of the demographic factors.

6.6.3 Comparing the Case Study Findings (A and B)

Common factors identified in company A and company B included the key driver for both the companies which was identified as corporate evolution. Company A was not able to achieve globalization at all levels but the company was effected by technology change. When considering the factors used to overcome resistance to technology change, in company A the rewarding of employees was found to be ineffective when compared to company B where rewarding achieved the aims set out for it to achieve. Factors such as training and communication were achieved effectively and were implemented successfully in company B whereas company A was only able to pertain to training and communication in documents and policies. It was identified that company A was not able to successfully implement training and communication programmes for its employees when technology change was planned/implemented. It was a positive indicator that both the companies were able to achieve the factor of job performance successfully. This shows that UAE public sector companies have been taking appropriate steps to overcome resistance to technology change. The strategies that they have implemented to overcome resistance can provide good indicators for further studies.

Considering the management factors that affect resistance, company A was not successful in dealing with the areas concerning the cost of change and the overload of work processes in the change process. It was identified that company B even though it strategies to overcome resistance it could not succeed in overcoming management resistance and its efforts to deal with this were restricted to documents and records only. This indicates that UAE public sector companies need to focus more on overcoming the resistance to change from the managerial levels. Company A and B were found to successfully implement effective strategies to overcome conflicts between employees. In terms of change appreciation Company A was not able to successfully implement such an appreciation whereas in company B such an appreciation was restricted only to documents. Furthermore, neither of the companies could successfully implement strategies concerning job security so UAE public sector management has to see that there is a need for providing job security for all its employees as this helps in having job satisfaction. Finally, when considering the demographic factors, company A was not able to successfully implement strategies on gender differentiation and it was also found that company A gave more preference to hiring male employees than female employees. Company B could successfully implement and overcome all the factors relating to demographics which showed that company B has been more successful in bringing in change when compared to company A. When looking at the major commonalities between the companies, factors relating to management were found to be not achieved in either company. Relatively speaking, company B had achieved more success when compared to company A. This showed that company B has been successful in implementing policies and strategies regarding technology change which helped it to overcome resistance more easily than when compared to company A.

6.7 Chapter Summary

Technology change has brought about major changes in the work processes of many organizations. This part of the study indicates that the UAE public sector has taken major steps in dealing with resistance to technology change. The major reasons for resistance to technology change from both management and employees were found to be fear of overload, loss of power, increasing work load, need to learn and relearn, and a lack of

appropriate reward policies. Furthermore, the researcher understood that companies A and B have taken effective steps to overcome resistance by using a variety of strategies such as effective communication, training and motivating that has enhanced employee job performance. In addition to this, the researcher has also identified that UAE public sector companies have shown positive outcomes in terms of technology adoption whereby most of the tasks have been accomplished faster than before with minor or no errors. Employees feel that even though learning and relearning needs effort they are able to perform the task(s) more effectively with the help of technology change. Even though management were concerned with the increasing cost of change and felt that there was a need to overcome conflicts between employees due to technology change, they were able to implement effective strategies in order to overcome resistance to technology change to a very great extent.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7 .SUMMARY OF FINDINGS

In the process of doing this research, researcher has divided the research into two parts, of which part one included developing a conceptual framework and, part two includes designing the actual research study through data collection and analysis. In this process initially the researcher has developed research aims, objectives and research questions that focused on studying the reasons for employee resistance to technology change and the major factors that show an impact on resistance. Second the research has done extensive literature review and identified factors in each perspective such as factors driving technological change, management and human factors to resistance to technology change, strategies to overcome resistance and indicators of job performance in UAE public sector companies. Third the researcher developed a survey questionnaire which was distributed to employees in the selected organizations and conducted semi structured interviews with HR managers. After receiving the information from the participants the researcher revised the list of factors and designed a framework. Fourth through the data analysis, framework was validated and results were discussed. Finally based on the results the researcher gave final conclusions and recommendations. In the following parts the researcher discusses the summary of findings, what has been achieved, recommendations and further areas of research.

The literature review identified that it is important to see that resistance to change needs to be expected when change is undertaken without involving employees. Currently organizations are undergoing tremendous change because of various reasons. Therefore, it is vital to identify the factors that drive resistance to change. To do this it is important to understand the present external and internal scenarios in order to know why people resist change, especially technological change. It can be understood that, initially, resistance begins at individual level which then slowly moves to group level and then finally reaches its peak at organizational level. To deal with such situations organizations have to take the necessary steps to observe and identify the expected resistance so as to help them in bringing out suitable strategies to overcome it. It is a common characteristic that most humans are reluctant to change and resist change. It can be noted that managers, as well as employees, know that they have to accept change but may initially

resist as they can have personal professional issues themselves as regards to change. Management has to build a positive environment when a change is introduced by creating good relationships with their employees.

The literature review further identified that employees generally resist change but the reasons for this resistance can be many. From the literature review it is understood that identifying individual reasons is difficult but that identifying reasons in general is easier. Thus there are many reasons for resistance to change but in the author's view identifying the reasons for resistance based on group, and individual, perceptions need to be initially identified and, thereafter, change has to be implemented. The psychological thinking of employees, cultural aspects, local, organizational and social aspects, the behaviour of employees and, finally, demographic aspects such as age and gender have an impact on the resistance to change. Thus organizations have to focus on such issues and identify the best suitable strategies to overcome them.

Looking at management perspectives the literature shows that organizations also resist change even though they intend to implement it. Cost can be one of the major reasons. Also managers know that implementing change is difficult and they have a fear that they may lose their authority over the employees. All these aspects show that there is a need to study the major factors of resistance to change and to identify suitable strategies to overcome them. It is clearly understood from the initial look at the literature that there is resistance to change, but how to overcome this resistance is a big task for management. As discussed in the earlier sections of this chapter, organizations have to initially identify the reasons, factors and driving forces for resistance to change and then plan and formulate strategies that will help them to overcome such issues. Finally, the literature review suggests that if an organization successfully implements effective strategies this will not only help employees improve their performance but will also help management in overcoming issues of resistance.

According to the research findings of stage 1 the research identified four factors driving technology change. UAE public sector viewed corporate evolution, globalization, privatization and technology change as driving factors. Further the research has identified

management factors (high cost of changes, fear of loss of power, requiring efforts to learn and relearn and fear of overload) and human factors (behavioural, demographic, social, cultural psychological factors). Finally researcher has found communication, motivation, reward policy and training as strategies to overcome resistance. At stage 1 an initial framework was developed by the researcher to identify the factors driving, factors effecting resistance to technology change, indicators of job performance and strategies to overcome resistance. In stage 2 a new framework was developed with the refined factors that were identified through the semi-structured interviews. The reasons behind conducting the semi-structured interviews was to understand how employees are affected by technology change in organizations and what are the major reasons and factors that lead to employee resistance. The questions were designed to understand the impact of, and the reasons for, employee resistance to technology change and management resistance to technology change as well as the necessary strategies required to mitigate resistance to technology change. Open ended questions were discussed with the interview participants. According to the interviewees' answers, all the participants (A, B and C) agreed with all the factors mentioned in the questionnaire. From an analysis of the interviews, it was identified that there are some factors that do not affect technology change and these factors were eliminated from the initial framework (stage 1) and a new framework (stage 2) was developed based on the interview results. A list was made in order of priority spanning the factors from those that were the most effective down to the factors that were least effective.

7.1 What Has Been Achieved?

The research aimed to produce a framework that could help in assessing the resistance to technology change in UAE public sector companies. The researcher has used an appropriate research method so as to answer the research questions and was able to achieve the research objectives.

- The first research question was “*what are the factors that lead to resistance to change brought about as a result of new technology implementation in public sector organizations in the UAE?*”. Researcher achieved this objective through

literature review that helped the researcher to investigate the relevant factors that drive technology change, management and human factors that led to resistance to technology change in employees.

- Research question two *“how can opportunities for improvement be identified and measured in order to overcome resistance to change brought about by new technology implementations?”*, researcher with the help of secondary data and literature review was able to develop job performance indicators and strategies to mitigate resistance to change.
- To investigate the level of impact of these identified factors, indicators and strategies researcher has conducted survey with employees and semi structured interviews with HR managers in selected UAE public sector companies.

7.1.1 Framework development (Stage 1)

At stage one in the findings of the initial framework (using the survey) it was identified that there is strong agreement by employees on the drivers of technological change.

- When looking at the drivers of technology change, corporate evolution seems to have the highest impact on UAE public sector companies and there was an equal percentage of resistance and acceptance on the resistance to technology change.
- Considering the reasons for employees’ resistance to technological change, it was identified that no such resistance was identified in the management within the UAE companies when a company introduced a new technology and the management strongly concurred with the introduction of new technology.
- The findings concerning the reasons for management’s resistance to technological change show that there was high level agreement from employees with the statement that company has taken suitable and practical procedures to overcome the resistance to the technological changes.
- Therefore, it is clear that this is a positive indication that UAE public sector companies are taking appropriate steps to overcome resistance to technology change.

- The findings concerning necessary strategies to mitigate the resistance to technological change indicate that technology change has positively impacted on all the public sector companies in the UAE.
- Indicators of technological change show that UAE public sector companies are undertaking necessary strategies in order to mitigate the resistance to the technological change which is a good indication and helps in reducing, or overcoming, resistance to technology change from employees as well as management.

7.1.2: Framework Refinement Findings (Stage 2)

Further work was undertaken to refine the initial framework by interviewing middle managers.

- From the interview results and analysis the researcher understood that technology development and corporate evolution are the only factors that drive technology change and that globalization and privatization do not affect organizations as drivers of technology change. This is possibly due to fact that employees are not aware of company plans because they are public companies and any envisaged changes and plans come from the government.
- Thus in this framework refinement stage researcher understood that only technology development and corporate evolution are the factors that drive technology change and globalization and privatization do not affect an organization as drivers of technology change. This may be because employees are not aware of company plans, because the companies are public companies and any changes and plans come from the government. Thus globalization and privatization do not show any impact as factors that drive technology. It was found that the factor technological development has a more major impact compared to the factor corporate evolution.
- Motivation was said not to affect the strategies in overcoming resistance to technology change so this item has been removed from the framework. A reward policy was given more preference when compared to training. With regard to the

indicators of job performance effectiveness, most importance was given to improving the quality of work, accomplishing tasks and eliminating errors.

- When considering the human factors it was seen that sociological factors were said not to have any effect on resistance to change.
- Finally, four factors within the demographic factors were given least importance and cultural factors were said to be in second position in terms of effect. Within behavioural factors loyalty did not show any impact; in demographic factors gender and education had no effect and within psychological factors a lack of trust in others did not show any effect on the resistance to technology change.
- While considering the management factors, researcher identified that more preference is given to fear of loss and cost of changes.
- From the final findings of the analysis researcher identified that motivation had no impact on employee resistance and rewarding policy was given more preference when compared with training so these two items were moved based on the level of impact in consideration with strategies to overcome resistance to technology change, so this item was removed.
- Considering the indicators of job performance effectiveness, the researcher identified that improving the quality of work was given more importance when considered to accomplishing the task(s) and eliminating errors.

The findings of the case study analysis indicate that the UAE public sector has taken major steps to work on overcoming resistance to technology change.

- The major reasons for resistance to technology change on the part of both management and employees were found to be fear of overload, loss of power, increasing work load, a need to learn and re-learn, and a lack of appropriate reward policies.
- Furthermore, the researcher understands that companies A and B have taken effective steps to overcome resistance by using a variety of strategies such as effective communication, training and motivating in order to enhance employee job performance.

- It is also identified that UAE public sector companies have shown positive outcomes in terms of technology adoption whereby most of the tasks are accomplished faster than before with minor or no errors. Employees feel that even though learning and re-learning requires effort they are able to perform the task more effectively with the help of technology change.
 - Management is aware of the increasing cost of change and of the need to overcome conflicts between employees due to technology change, but with effective strategies they are able to overcome resistance to a large extent.
 - In conclusion, the research results indicate that similar and valid reasons were identified from the survey and from the interviews on the resistance to technology change from both employees and management and those similar strategies to overcome resistance were also identified.
 - The initial framework helped the researcher to refine the factors affecting resistance to technology change and they were prioritized based on their level of impact. The refined framework helped the researcher to identify the most significant factors based on the level of impact.
 - Most of the results, analysis and findings derived from the survey and the interviews show that technology change has a significant impact due to globalization and technology innovation.
 - Furthermore, it is seen that, in UAE public companies, the most important factors that lead to employee resistance and management resistance to technology change are fear of losing control and power, the high cost of change, and a fear of losing their current job.
 - However, there are positive indications that UAE public sector companies are taking appropriate steps to overcome resistance to technology change.
- ✓ What are the factors lead to resistance to technological change in the public sector organization in the UAE?

Results indicate that technological development is given more importance when considered to corporate evolution, reward policy is given more preference when

compared to training and for indicators of job performance effectiveness, most importance is given to improve the quality of work, accomplishing task, eliminate errors. Further major reasons to resistance to technology change from management and employee side were found to be fear of overload, loss of power, increasing work load, need to learn and re learn, lack of appropriate reward policies.

- ✓ How can opportunities for improvement be identified and measured in order to overcome resistance to change brought about by new technology implementations?

Results indicate that measures and opportunities for improvement to overcome resistance to change brought about by new technology implementations UAE public sector has taken major steps to work towards resistance to technology change

7.2 Recommendations

The findings derived from the survey and the interviews show that technology change has a significant impact due to globalization and technology innovation. It is evident from research that UAE has undergone drastic changes in terms of technology change. Technology innovation or change has an important influence on organizational performance. There is a close relationship between technology change, human resource management and organizational performance. It is said that technology change can improve a firm's competitive advantage and can increase the overall performance of organizations. It can also be seen that the pace of introduction of new technology appears to be increasing in many industries as these industries modernize in order to reduce cost and compete more effectively in domestic and overseas markets. Thus the following recommendations are put forward for further transparency.

(a) Individual managers

- ✓ Information technology should be evaluated with respect to the ten major factors that influence technology change depending on the type of organization. These may include scalability, extensibility, reliability, adaptability, flexibility, maintainability, performance, simplicity, backward compatibility, and features or

usability. Thus resistance to change should be expected when change is undertaken without involving employees within the process.

- ✓ As discussed by Peter (2011) the 'best of breed' approach in IT business is presently moving from application silos with zones of virtualization to a shared world. Both private and public sectors should encourage business dynamics to look at different solutions that encompass traditional layouts.
- ✓ It is important for organizations to take steps in order to avoid such situations; organizations can be more specific about the changes and can explain how globalization will benefit employees such as providing better career opportunities in terms of pay and bonuses. It is a similar case with privatization since these are public companies where employees feel more secure in terms of jobs and positions. Furthermore, employees do not have to have high skills in order to compete and as such will resist any privatization. Abeyasinghe and Paul (2005) explained that private organizations can easily adapt to technological changes within the company and can hire employees with the required skills needed for these changes, whereas for public sector organizations adapting to, and implementing, new technology is not that easy and employees that do not have the required skills will feel apprehensive about their jobs, will be discontented with their work and will resist change
- ✓ Leaders and managers should focus on maintaining a positive work environment and keep the employees motivated so that they can perform well and feel responsible for what for they are undertaking within the organization.
- ✓ In order to maintain stability, and by seeking consensus, organizations can meet resistance successfully if they provide feedback, communicate effectively, motivate and provide appropriate training. This will develop a positive response by employees towards their management and will help managers to overcome their fears as regards the issue of loss of power. With regard to communication, organizations should establish consultation with and participation by, the work force when a change process is planned.
- ✓ Communicating with employees regarding the present situation and the future desired state brings trust among the employees which is important and there is

also the chance of receiving important advice from employees that may assist the change process. New channels of communication must be established in order to avoid isolating sections of the workforce so that everyone in the organization should be able to access the information available and discuss it. Thus training, communicating and motivating employees will help employees develop confidence in management and the company and will encourage them to perform well and to overcome their fear of losing their jobs.

(b) Academics

- ✓ There is a need for lecturers, professors and tutors to include the subject of resistance to technology change in UAE and allow the students to learn more on the concept of need for change and need to adapt to change.
- ✓ Further professors have to learn and study on the strategies that could be further implemented to foresee that resistance to technology change do not arise and what best strategies organizations can opt for better employee performance especially in UAE organizations.

(c) Researchers

- ✓ There is a need to study as to what extent employees and management are able to cope with new systems. There is a need to conduct regular surveys and to collect opinions from employees to know what they need in order to cope with the new technology.
- ✓ There is a positive feedback on the various strategies taken up by UAE public sector companies but there is also a need for timely communications, to listen to, and fulfill the needs of, employees and to provide adequate training courses in order to increase job performance. All these strategies could help companies in mitigating resistance to technology and this could show a positive outcome in all the public sector companies in the UAE.

(d) Training providers

- ✓ From the research findings, it is understood that most managers have a fear of losing control and power, fear for the high cost of change, and have a fear of losing their current job. To improve the situation it is vital to see that, when a change process takes place, it is essential for the employees as well as managers to make themselves comfortable in accepting change with the help of training and other knowledgeable sources such as new trends and approaches that can help the organization in meeting its requirements for the change process.
- ✓ Employees need regular retraining in order to constantly update their knowledge in all the areas which are essential for an organization's future. Above all, motivation plays a major role when discussing overcoming resistance to change. With regard to the fear of the loss of power, here it is the responsibility of managers of organizations to keep their employees motivated and to keep productivity high.

(e) Public at large

- ✓ UAE being one of the fast developing country from the past decade general public has to make themselves aware on the importance and need to adapt to technology chances.
- ✓ Further, individuals have to learn the importance of technology and prepare themselves to new technologies and change.

In general, the researcher found that UAE public sector companies are taking up many strategies in order to mitigate resistance to change and in order to overcome issues of job performance. It is also evident from the findings that, after implementing strategies to overcome resistance (such as training, communicating, motivating, etc.), employees are able to accomplish tasks quickly, to enhance their job performance, to have control over their work and, finally, are able to improve their quality of work. This research has shown that many positive steps have been implemented in order to overcome resistance to change in UAE public sector companies.

7.3 Future area of research

The current research has contributed to the understanding of impact of change technology in UAE public sector companies, further the case studies and framework developed helped the researcher to assess the impact of technology change. However, the researcher has identified that there is a need for further research which should focus on the following aspects

- ✓ The current research has focused only on four major public sector companies (company A, B, C and D that names assigned to case study for anonymity) but there are many other public sector companies which could be taken as a sample for study.
- ✓ Further, this research has focused only on four public sector companies, where in UAE has seen tremendous change in both public and private sectors. UAE has a large variety of private sector organizations which are been working in par with latest technology aspects and many others similar to that of public sector. But private sector has been not considered in the current research and which has a wide scope for understanding the impact of technology change in all sectors and aspects.
- ✓ The current research has chosen only three major variables (drivers of technology change, reasons for employees' and management's resistance to technological change) and tried to identify the strategies and indicators of technology change. UAE being a fast developing country and introduction of technology has become vital and necessary so further research could be continued on identifying what factors are considered (or need to consider) by organizations and management before bringing a change, what issues management need to discuss with employees before introducing a technology, what factors, what steps organizations are taking up before introducing a new technology, are these steps effective in motivating employees to accept the new technology.
- ✓ Research results indicated strong evidences on indicators of job performance effectiveness and management factors to resistance to technology change so further research could be focused on extracting variables related to technology

change such as identifying employee satisfaction and acceptance levels for new technology, identifying employee skills and refining them to perform assigned task effectively, identifying what necessary resources could help employee to perform the job more effectively with the new technology as these factors could help in identifying indicators of job performance effectiveness.

- ✓ Further results indicate that fear of loss of power is one major factor identified as management factors to resistance to technology change. So reasons for fear of loss of power in management perspective could also be studied.

CHAPTER 8

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8. References

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CHAPTER 9

APPENDICES

Assessing Resistance to Technology Change For Improved Job Performance in the UAE

Student Name: - Mohammed Al Ameri

PhD student

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**Assessing Resistance to Technology
Change for Improved Job
Performance in the UAE**



This questionnaire is part of a thesis project conducted by Mohammed Al Ameri, a final year student in PhD program at the University of Salford, School of Construction and Property Management. This questionnaire is focused primarily on assessing the resistance to technology change to improve the performance. There are many questions in this survey and it will take no longer than 30 minutes to complete the questionnaire. Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Please make your answer by selecting the necessary item or writing an answer on the text line, where applicable. Technological change is a term that is used to describe the overall process of invention, innovation and diffusion of technology or processes. Introducing a technological change in the Employer's operation is directly related to the introduction of a new equipment or information system that will result in changes in the employment status or in working conditions of employees.

Thank you very much for your time and support.

The Questionnaire

1- The following set of questions is to identify the drivers to technological change in the company, please tick (✓) in front of words that correspond with the degree of your answer.

| Ser | phrases | Degree of agreement | | | | |
|-----|--|---------------------|-------------|---------|-------|----------------|
| | | Strongly disagree | Don't agree | Neutral | Agree | Strongly agree |
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Has your company introduced a new technology in terms of new equipments or new programs? | | | | | |
| 2 | If the company has introduced a technological change, are the reasons for the technological change visible to the employees? | | | | | |

2- Which of the following is an important key driver to the technological change in your company?

- | | | |
|---|---------------------------|--------------------------|
| 1 | Corporate evolution | <input type="checkbox"/> |
| 2 | Globalization | <input type="checkbox"/> |
| 3 | Privatization | <input type="checkbox"/> |
| 4 | Technological development | <input type="checkbox"/> |

3-When your company introduced a new technology, was there any resistance from the employees to the technological change?

Yes ☐

No ☐

Don't know ☐

4- The following set of questions is to identify the reasons for employees' resistance to technological change in the company, please tick (✓) in front of words that correspond with the degree of your answer.

| Ser | phrases | Degree of agreement | | | | |
|-----|---|---------------------|-------------|---------|-------|----------------|
| | | Strongly disagree | Don't agree | Neutral | Agree | Strongly agree |
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Are employees rewarded when the technological change is successfully implemented? | | | | | |
| 2 | When employees resist the technological change, is their job performance in the company affected? | | | | | |
| 3 | Does the resistance to technological change impact the employee's loyalty to the company? | | | | | |
| 4 | Are there clearly defined implementation steps to employees for the technological change process in your company? | | | | | |
| 5 | Is there any conflict between the employees' expectations for their jobs and the goals of your company within the new technological change? | | | | | |
| 6 | Does the management of the company look for and solve the issues of the employees during the technological change? | | | | | |
| 7 | Do employees have the fear of the uncertain outcomes of the new technological change? | | | | | |
| 8 | Do the employees lack the necessary information, skills and adequate training to accept the new technological change? | | | | | |
| 9 | Are employees comfortable with the current technology and the routine procedures? | | | | | |
| 10 | Do employees desire to keep the existing positions in the company? | | | | | |
| 11 | Is training given with supporting materials to create confidence with system and the processes? | | | | | |
| 12 | Are ideas openly communicated and encouraged within the implementation of technological change? | | | | | |
| 13 | Are there long periods of planning before the technological change is delivered? | | | | | |
| 14 | Do employees understand why technological | | | | | |

| | | | | | | |
|----|---|--|--|--|--|--|
| | change is happening and why it's necessary? | | | | | |
| 15 | Does the change agent lack the required skills to adopt the new technological change in your company? | | | | | |

5 - When the company introduces a new technology, is there any resistance from the management to the technological change?

Yes ☐

No ☐

Don't know ☐

6- The following set of questions is to identify the reasons for management's resistance to technological change in the company, please tick (✓) in front of words that correspond with the degree of your answer.

| Ser | phrases | Degree of agreement | | | | |
|-----|---|---------------------|-------------|---------|-------|----------------|
| | | Strongly disagree | Don't agree | Neutral | Agree | Strongly agree |
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Is high cost of change the primary reason for management to resist change? | | | | | |
| 2 | Does the management team have the fear of losing their current job title in the company? | | | | | |
| 3 | Does the management in the company have the fear of losing the control and power? | | | | | |
| 4 | Does the management team work extra time to learn more about the new technology and manage the technological change successfully? | | | | | |
| 5 | Does management team involve employees in designing the technological change? | | | | | |
| 6 | Does the management team have the feeling of in-difference to their subordinates? | | | | | |
| 7 | Do managers have priority of other businesses rather than pay attention to technological change? | | | | | |

7-Are there suitable and practical procedures to overcome the resistance to the technological changes?

Yes ☐

No ☐

Don't know ☐

8- The following set of questions is to identify the necessary strategies to mitigate the resistance to the technological change in the company, please tick (✓) in front of words that correspond with the degree of your answer.

| Ser | phrases | Degree of agreement | | | | |
|-----|---|---------------------|-------------|---------|-------|----------------|
| | | Strongly disagree | Don't agree | Neutral | Agree | Strongly agree |
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Is communication about the change timely and relevant? | | | | | |
| 2 | Does the company provide adequate training courses to increase the job performance and remedy the resistance of change? | | | | | |
| 3 | Does the management team empower the employees in the change process and listen to them to fulfill their needs? | | | | | |
| 4 | Do leaders in the company meet with employees who encounter difficulties in the change process? | | | | | |
| 5 | Is there an effective rewarding policy to pay for performance? | | | | | |

9- Does the technological change influence the company positively?

Yes ☐

No ☐

Don't know ☐

10- The following set of questions is to identify the indicators of the technological change in the company, please tick (√) in front of words that correspond with the degree of your answer.

| Ser | phrases | Strongly disagree | Don't agree | Neutral | Agree | Strongly agree |
|-----|---|-------------------|-------------|---------|-------|----------------|
| | Degree of agreement | | | | | |
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Does the technological change improve the quality of work? | | | | | |
| 2 | Does the technological change increase the efficiency and productivity of the employees in the company? | | | | | |
| 3 | Does the technological change reduce the total errors? | | | | | |
| 4 | Was the company able to increasing the job performance after adopting new technologies? | | | | | |
| 5 | Was the company able to control the work and process more efficiently with new technologies? | | | | | |
| 6 | Are work tasks accomplished quickly with new technologies? | | | | | |

10-Demographic details

1- Gender :

- ☐ - Male
☐ - Female

2-Age

- ☐ - Less than 25 years old
☐ - From 25 to less than 30 years old
☐ - From 30 to less than 35 years old
☐ - From 35 to less than 40 years old
☐ - Above 40 years old

3 - Education level:

- ☐ - Diploma
☐ - Higher diploma

- ☐ - University degree
- ☐ - Higher degree (Master's/PhD)

4- How long have you been working in the company?

- ☐ - Less than one year
- ☐ - From one year to less than 5 years
- ☐ - From 5 years to less than 10 years
- ☐ - More than 10 years
- Total work experience including the work in your company (.....) years.

5- Name of the company(Optional):

.....

6- Position in the company(Optional):

.....

7- The department you belong to:

.....

8- If you have any further comments please feel free to add them here.

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Thanks.